ON PREVENTIVE MEDICINE:

THE MEDICINE OF THE FUTURE.

BEING THE ADDRESS IN MEDICINE DELIVERED AT THE ANNUAL MEETING OF THE CANADIAN MEDICAL ASSOCIATION, JUNE, 1911.

BY

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MR. PRESIDENT, LADIES AND GENTLEMEN, — When you extended to me your warm and cordial invitation to deliver this address I felt that you were asking me to undertake a task which I could only very inadequately perform; and, moreover, I felt that the burden was further weighted by the appreciative and anticipatory remark of your President when he wrote me saying: "I don't know any one who could give us a more interesting and profitable address than yourself." His expectations evidently ran high; how far these will be realized is a matter for your consideration. Personally I put the question to myself, How can I best satisfy the aspirations of a young, enterprising, and vigorous race? This is my third visit to the Dominion, and on each occasion I have addressed a Canadian audience, so I am not quite a stranger. I hope, therefore, I can claim your indulgence for a patient hearing.

On such an occasion as this it is customary for one to magnify his office, to say pleasant things, to paint the glories of the past, and depict in glowing terms for the benefit of the public what medicine has done for humanity. On the other hand, it has been said that the art of pleasing is the art of deceiving, hence I have no wish that we should hoist a high standard of righteousness or pose as the only benefactors of the race. There can be no doubt that the great advances of medical science have been of enormous advantage to individuals, and have enabled innumerable persons to survive who would otherwise have succumbed to the stress of circumstances, but how far this has been an advantage to the evolution of the human race as a whole is a disputable point. Karl Pearson says:

> The very existence of human society depends upon a strong gregarious instinct having been evolved among men. Our highest human product, sympathy with our fellow men, is as much a product of evolution as the gregarious instinct of a herd of deer, or the combined action of a pack of wolves. Only it is more completely developed, and with increasing knowledge we have lost more and more touch with its instinctive gratification. The sympathy is there, ready to run riot in a thousand ways, which sober reflection may not show to be for the ultimate advantage of the herd. It is easy to give a shilling to a beggar, to subscribe a pound to a charity, or to found stipends for the blind or the deaf and dumb. Our strong instinct of sympathy with suffering has been gratified, but shall we really have contributed to the total enjoyment of the race? May be, and may be not—the pedigrees of general mental and physical degeneracy which I place before you may help you to a judgement. Of one thing, however, I feel sure, that no judgement will lead to lasting social gain which is reached by appeal to the emotions, which is based on inadequate knowledge of facts, or which collects data with the view of supporting any preconceived opinion.

The Scriptures say that it is more blessed to give than to receive, and I think I can claim, on behalf of our profession that, whether we have always been right or not, we have been ever actuated by a spirit of altruism. The process of vicarious charity, at the expense of the medical profession, has gradually grown so that in the present day at least a fourth of the population of England receives free medical advice. Why should all this charity be necessary? Why should such a large proportion of the population be pauperized? It would seem to me that it is because we are producing an inferior breed, because we are not raising up a healthy, independent race. The struggle for existence is not merely an individual question, but it is becoming more and more a national question, and the nation which produces the finest race is sure to win in the long run. As Professor Arthur Thomson says, what children usually die of is their parents, and what a nation dies of is lack of men.

In future medical men must not be content with treating the diseases of the community, they must point out the lines along which the nation is to be improved by encouraging the multiplication of the fit, and controlling the increase of the unfit. The public must be taught that the health of the nation is its most valuable asset, and that the maintenance of health is of much more importance than the treatment of disease. This departure in placing physiological processes before pathology involves a higher form of medical education than that prevalent in our medical schools of to-day—an education in which only men of the highest intelligence should take part.

"Prevention is better than cure" is one of those half-truths which readily command public acceptance as axioms which cannot be gainsaid; but it is not Nature's method, and medical men are incessantly talking about following the laws of Nature. The prevention of disease is very important to the individual, but when it enables undesirables to go on generation after generation propagating their species it can be of no advantage to the race. In an address on preventive medicine which I gave four years ago I stated that if the public were only alive to their own interests they would pay medical men liberally for directing them in the paths of truth and in the ways of health rather than for treating their diseases. If the money which is spent in the treatment of disease were devoted to the preservation of health, our huge hospitals would not be half filled, purveyors of synthetic remedies and artificial foods might find a suitable place in a home for the destitute, the necessity for surgeons and specialists would largely disappear and physicians would be fully occupied in advising their *clientèle* on the preservation of health and in looking after the aged. I am afraid we are still a long way off those halcyon days when our hospital buildings will be pointed out as relics of a decadent age; but still we should at least aim at transmitting high ideals to our successors. We can best attain those ideals by improving the stock; no environment will ever produce a genius.

Hitherto medical men have been devoting all their energies to the environment, adapting the environment to the individual, not the individual to the environment, thus not assisting the race to take care of itself. Attention, however, to the environment is absolutely essential in the prevention of disease. Although disease is Nature's method of killing off the unfit, it often severely damages those who survive, and is thus a slow and crude method of improving the race. Man has now risen superior to natural selection, and insists on living when all natural forces are against him. Medical science has succeeded in suspending the natural selective death-rate, and sentimentality renders the existence and rapid multiplication of the undesirables an easy matter. In the old countries the undesirables are increasing at a much more rapid rate than the mentally and physically fit. Those countries which have to a large extent suspended a selective death-rate, but are not wise enough to establish a selective birth-rate are certain to decay, and go the way of all the ancient nations who disappeared and made way for more vigorous races. You have got here a young country, a virgin soil, and you should see that it is peopled by a vigorous and intellectual race. You should shut out all degenerate foreigners as rigidly as you would exclude a mad dog. Do not follow our example, and make your shores a dumping ground for the rubbish of Europe. I believe you have already got a fair share of degenerates, but your population is still small, and there should be no difficulty in eliminating the unfit in the course of a generation or two.

When I was first in Canada, thirteen years ago, I read some literature about the rapid reproduction of the French Canadians, and the marked contrast in the size of their families to those in France. It was then calculated that, at the same rate of fertility, in about a century they would not only populate the whole of Canada, but would overrun the whole of North America. The Yellow Peril was not in it with them. However, I do not yet notice much change. A large number of you have not yet been pushed westward. Nature has her compensations, and this is evidently proving a saving grace to a less prolific breed. A high birth-rate is accompanied by a large infantile death-rate, and the natural increment in the population is not unduly excessive. Natural selection is still in force; the weaklings

are being killed off, and no doubt a strong and vigorous race is left behind.

The crude birth-rate for 1,000 persons living in Ireland, the Province of Ontario, England and Wales, and Scotland in 1909 was respectively 23.5, 24.9, 25.6, and 26.4. On the other hand, if we take the fertility of 1,000 wives between the ages of 15 and 45, we find that the Irish wives head the list, the numbers being: Ireland, 289.4; Scotland, 271.8; England and Wales, 235.5; and France, 157 5. I have not been able to get such statistics from Canada.*

Now when we come to the corrected death-rates at all ages for 1.000 living in 1909, we find the rate in Scotland: males, 18.56; females, 16.73; England and Wales: males, 18 37; females, 16.04; Ireland: males, 16.25; females, 16 90. In Canada in 1901, for both sexes, 15.10. In Ireland, Norway, Sweden, and Australia the infantile mortality is very low. In Ireland the death-rate for children under 10 years of age is very much lower than in England and Scotland, but it is rather higher among individuals from 10 to 35 years, and then there is a decided fall till the age of 75. Above that age the death-rate in Ireland rises rapidly, and it might look as if Ireland was a dangerous place for old people to live in, but it is simply due to the proportionately greater number of old people in Ireland. There is no evidence to show that the high mortality is due to the old age pensions.

The higher death-rate in Ireland from 10 to 35 years is almost entirely due to tuberculosis, and the lower death-rate at all other ages, except extreme old age, points indubitably to the fact that tuberculosis is one of Nature's methods of getting rid of the unfit. The wave of enthusiasm over the conquest of consumption is so overwhelming in the present day that it requires a very bold man to say a word in favour of the tubercle bacillus. Dr. D. W. Hunter, of the Royal Albert Asylum for Idiots, in criticizing a recent work on the conquest of consumption, said *inter alia*:

> Many an imbecile owes his existence to the fact that his parents failed to die of tuberculosis. . . . Again, as regards insanity, the authors themselves estimate that, roughly, one in every eight consumptives is likewise insane. This tendency to consumption among the insane they explain by the lowered resistance of the soil during the attack of insanity. This may be so, but it is certainly not the whole story. While, during the last fifty or sixty years, the death-rate from tuberculosis has steadily diminished, we are, on the other hand, faced with a very ugly rise in our insane rate. Since the insane show such a marked tendency to tuberculosis, it is not improbable that the diminishing death-rate from tuberculosis has played a considerable part in the increase of insanity:

And again:

> Let us take the case of the idiot. The death-rate among idiots is about ten times that of the normal population at the same age. Further, of deaths of idiots, about 80 per cent. are due to tuberculosis. Now an idiot has not even the resisting power necessary to die of phthisis. He dies of acute tuberculosis, death taking place in from three to six weeks from the onset of the illness. Surely here there is some inherited lowering of the soil. There are some 150,000 (estimated) of these defectives in England and Wales, and for every defective there are from six to a dozen of his relatives only a shade better than himself. Practically the same holds for insanity, yet we are asked to believe that a man cannot inherit a soil which will remain during his lifetime permanently below the average in resisting power.

Further:

> Until we have some restriction in the marriage of undesirables the elimination of the tubercle bacillus is not worth aiming at. It forms a rough but on the whole a very serviceable check on the survival and propagation of the unfit. This world is not a hothouse, and a race which owed its survival to the fact that the tubercle bacillus had ceased to exist would, on the whole, be a race hardly worth surviving. Personally I am of opinion, and I think such opinion will be shared by most medical men who have been behind the scenes and have not allowed their sentiments to blind them, that if to-morrow the tubercle bacillus were non-existent, it would be nothing short of a national calamity. We are not yet ready for its disappearance.

These are wise and weighty words, but it would be too much to expect that they would command public acceptance, because there is nothing in the present day which people hate so much as the truth when it conflicts with popular sentiment.

Dr. Osler, in a recent lecture in Dublin on the fight against tuberculosis, said: "And, lastly, for our great consolation, we know that the disease is not hereditary, and for this let us be thankful." We know nothing of the kind, although we are constantly having it dinned into our ears by medical men who ought to know better. We know that the tubercle bacillus, which is a necessary element in the production of tuberculosis, is not transmitted in the germ plasma, but the long, narrow, flat chest, delicate lungs and feeble resisting power to the tubercle bacillus and to many other germs are undoubtedly inherited, just as much so as the shape of your nose or the colour of your hair. Medical men who are shutting their eyes to the truth, and encouraging matrimony and the propagation of the species by mental and physical weaklings are incurring a fearful racial responsibility, and their action should be condemned in no uncertain language.

I am in favour of the abolition of tuberculosis, because I advocate artificial to assist natural selection. Moreover, tuberculosis is a poor method of a selective death-rate compared with typhus fever, which we have practically abolished. The latter disease cleared off the weaklings without doing any permanent injury to the survivors, but tuberculosis seriously damages the survivors, is a very slow and expensive disease to combat, and many an individual succumbs who would be a worthy citizen in a better environment. By all means improve the environment, improve your sanitary conditions, which will be beneficial in preventing tuberculosis and many other diseases. As far as possible destroy the tubercle bacillus, both human and bovine, and see that the milk supply is free from such organisms. Above all, both for the prevention of insanity and consumption, discourage and prevent the propagation of the species by the mental and physical weaklings. Raise up a race which will not be catching tuberculosis or anything else.

The medical officers of health are doing an enormous amount of good work in attacking the sources of supply of the tubercle bacilli, in preventing their dissemination, in looking after the milk supply, and in improving the sanitary conditions under which we live; but your blatant propagandist must see the disease before he begins to stamp it out with tuberculin dispensaries and sanatoriums. Dr. Barendt has reckoned that in the Middle Ages there were over a hundred leper houses in England when the population was less than four millions; there were also a few such houses in Scotland and Ireland. Leprosy was stamped out not so much by the leper houses as by improvements in the habits of the people, and by a holy abhorrence of the disease, so that the lepers took little or no part in adding to the population. It was laid down as a rule that the attendants or nurses at the leper houses should be discreet women of mature age.

During the last fifty years there has been a steady decline in the incidence of tuberculosis in England and Scotland, while in Ireland it has remained about stationary. On the other hand, during the same period the insane population of England and Wales has increased 250 per cent., while the whole population has only increased 81.6 per cent., and in Ireland, with a falling population, the increase has been about 100 per cent. The ratio of the insane to the general population is in England and Wales 1 in 278, in Ireland 1 in 158, and in Scotland 1 in 266. This is not all, as there is an even greater number of mental defectives in the three countries.

If you abolish the tubercle bacillus in Ireland then it will certainly become a question of "God save Ireland." Are the insane and defective-minded to be allowed to go on multiplying at the present rate? I do not know how matters stand in Canada, but I would advise you, while showing all possible kindness to the insane and mentally defective, not to allow them to indulge in the pastime of procreation, and give them clearly to understand that with them their breed must come to an end. Insanity and mental deficiency are largely questions of inheritance, and, unfortunately, owing to cross-breeding into impure stocks, there is a latent strain of insanity and other nervous affections in a great many families, so no matter how careful you are in your selection, it will take some generations before you eliminate this latent strain from the impure dominants, but the sooner you begin such a selective birth-rate and the elimination of the undesirables the sooner you will attain a more or less perfect race. With the insane, the imbecile, the idiot, the mentally defective, the criminal, the ordinary wastrel, the loafer,

* For my Canadian statistics I am very much indebted to Dr. Peter H. Bryce of Ottawa.

the professional pauper, the tramp, the footpad, the drunkard, and other mental and physical degenerates, prevention is certainly better than cure, but you will never succeed either in prevention or cure by maudlin sentimentality.

In England and Wales there has been a great reduction in the infantile mortality during the last ten years, due to the falling birth-rate, more favourable climatic conditions, and greater care of the infants, but there has been practically no reduction in the deaths from developmental and wasting diseases, which cause 61 per cent. of the total deaths during the first three months of life. It is, perhaps, best that this should be so, as the reduction in the birth-rate has been entirely among the better stocks, and if these 61 per cent. of defectives at birth survived, the only advantage that could possibly accrue would be in finding more work for the medical profession and more scope for the charitably disposed. Prevention in these cases implies breeding from better stocks.

Of recent years there has been a considerable increase in the death-rate from pneumonia, and this, no doubt, is partly due, as pointed out by the Registrar-General of England, to a more correct certification of deaths. Many of those formerly labelled bronchitis, especially among children, being now correctly designated pneumonia. But, whatever the cause of the apparent increase, there can be no doubt that the death-rate from this disease is somewhat fearful. In 1909 in England and Wales it caused more deaths than any other form of disease, with the single exception of all forms of tuberculosis. The deaths from it considerably exceeded those from phthisis; the numbers being per 1,000 deaths, pneumonia 89, phthisis 74·6; and the rate per 100,000 living, pneumonia 129, phthisis 108. Yet we have a great outcry about the conquest of consumption, but not a word about the conquest of pneumonia. It would seem as if the ordinary individual was incapable of getting more than one idea into his head at the same time.

Pneumonia is an infective process, due to infective organisms, the pneumococcus in the vast majority of cases, though many other organisms play an important rôle in individual cases. The pneumococcus is very widely spread, even more so than the tubercle bacillus, and I feel confident a bacteriologist would find it in the mouth of every one here present. Therefore, it is as a rule a harmless saprophyte, but in a dirty mouth it may assume a virulent character, and when the resisting power of the individual is depressed from any cause, such as undue exposure, especially during sleep when the control of the nervous system is largely in abeyance, alcohol, nervous prostration, the pneumococcus readily finds its way into the lungs or blood and sets up pneumonia, or general pneumococcal infection. Pneumonia is a common disease at the extremes of life, and in the aged it is often a terminal disease—the old die as easily from pneumonia as from anything else. Like typhus fever it is a good racial disease, it kills the weaklings, and, as a rule, causes no permanent injury to the survivors. The mortality is greater among males than females, and therefore in the old countries it increases the disparity between the sexes. Unfortunately it cuts off a large number of both sexes in the prime of life. The disease is short, and therefore inexpensive, so that no one makes much out of it except the undertakers, who grow fat on the misery of others. The case mortality is high, but yet no serious attempt has been made to curtail its incidence. The good lives cut short are soon forgotten. "The evil that men do lives after them; the good is oft interred with their bones." This disease is more prevalent in cities than in the country, and among those who lead unhealthy indoor lives rather than among those who work in the open.

Alcohol is a strong predisposing factor, a factor which not only increases the incidence of the disease, but also immeasurably lowers the resisting power of the individual, and so increases the mortality-rate. On the other hand, an excessive amount of lime salts in the blood greatly increases the resisting power of the individual, and so both lessens the incidence and the mortality. Any septic condition of the mouth increases the virulence of the organisms, and so a foul-mouthed individual is usually a greater danger to himself than to others. By way of prevention, the mouth should always be kept perfectly clean, and as aseptic as possible. The nasal passages and throat should be kept clean with some simple oily preparation, such as pure liquid paraffin, as they are frequently the paths of infection, not only for pneumonia, rheumatic fever, influenza, and diphtheria, but also for cerebro-spinal fever and poliomyelitis.

Sir Almroth Wright has introduced vaccines for the prevention and cure of many infectious diseases, and among the most valuable are the pneumococcal and influenzal vaccines, which, when judiciously used, are most valuable remedies in the prevention and treatment of these diseases. In apoplexy and hemiplegia the patient frequently succumbs to an attack of pneumonia, and this can be obviated by a proper vaccine. Operations on the mouth are frequently followed by a fatal septic pneumonia, and in such cases it is not sufficient to use antiseptic mouth washes, but previous to operation the pathogenic organisms in the mouth should be isolated, and a corresponding vaccine prepared. Antistreptococcal serum administered before operation is also a valuable adjunct.

Another common cause of the high mortality from pneumonia arises from lack of proper early treatment—often owing to the fact that some medical men take two or three days to diagnose the disease, and then call it congestion of the lungs, and treat it cavalierly as a matter of no great importance for fear of frightening the patient, until the unfortunate individual is too ill to be frightened by anything. In my opinion, if pneumonia were early recognized and properly treated the mortality would be greatly lessened.

In Ireland in 1909 the death-rate from pneumonia was lower than in England, being 60 per 1,000 deaths, and 99 in every 100,000 of the population.

In Scotland they move very slowly, even in the way of recording their deaths, as even now I have only been able to obtain the records of the eight principal towns for 1909. The death-rate from pneumonia was much higher than in England and Ireland, and this makes me wonder how much the national beverage had to do with the issue. The death-rate per 100,000 inhabitants was 177, varying from 217 in Glasgow to 92 in Perth; the rate per 1,000 deaths was 107, while that from phthisis was 77. In the Province of Ontario in 1907 the death-rate from this disease per 100,000 population was 138, and per 1,000 deaths, 91.

Bronchitis holds the second place as a cause of death in England and Wales, the numbers in 1909 per million persons living being 1,142, against 1,290 for pneumonia and 1,081 for phthisis. There has been a considerable diminution in the apparent incidence of the disease, partly owing to proper transference to the pneumonia list. Bronchitis is still very prevalent and fatal at the extremes of life, consequently the young and the old should be well protected against atmospheric changes. Some persons are much more susceptible to bronchial catarrh than others; this susceptibility is much lessened by a fair amount of lime salts in the blood, and increased by the salts of sodium and potassium, but in cases of true asthma the very reverse appertains. Alcohol and tobacco are injurious to the throat and bronchial mucous membrane; and the chronic cough thus induced is a frequent source of emphysema. A suitable vaccine is often highly beneficial in acute and chronic bronchitis, but there is no vaccine to counteract the effects of alcohol and tobacco. All destructive processes of the lung tissue cause emphysema. Senile emphysema is an atrophic process due to want of exercise of the lungs, associated with ossified costal cartilages; this can often be obviated by decalcifying agents and breathing exercises.

Pleurisy, again, is largely an infective but not a specific disease, as it may be associated with tubercle bacilli, rheumatism, pneumococcus, pyogenic organisms, typhoid and colon bacilli, etc. In its prevention and treatment we must avoid undue exposure and all depressing influences, and consider the infective organisms.

Since 1870 there has been a marked fall in the death-rate from small-pox, typhus, and enteric fever. Every person can be protected against small-pox at a very small cost; sanitarians have practically abolished typhus fever, and the incidence of enteric fever is and has been steadily diminishing, but we have still got to deal with some of its associated causes. The ordinary household scavenger, the domestic fly, is still a troublesome pest, and the human carrier usually causes a good deal of mischief before

discovery, and when discovered is difficult to control. The milk supply is still a frequent source of local epidemics, but the water supply is generally above reproach except in rural districts. A few epidemics have been traced to ice-cream vendors. The erroneous dread of sewer gas as a direct cause of the disease is now a matter of ancient history, except in the law courts, where it still does duty.

In the army Sir Almroth Wright has been fairly successful in lessening both the incidence and mortality of this disease by his vaccine, but in all campaigns thorough sterilization of the water is the most important method of prevention. Other matters must not be neglected, such as the disposal of the excreta and the protection of the food from infection by flies.

In diseases which largely affect children, such as measles, whooping-cough, diphtheria, and diarrhoea, the improvement has not been so marked, except in diarrhoea, in which, during the last few years, the incidence has fallen owing to favourable climatic influences. In scarlet fever where isolation is pretty universally adopted there has been a great fall both in the incidence and mortality. Although there has been quite a revolution in the treatment of diphtheria and consequently in the case-fatality, I am afraid sanitarians have not done their share in lessening the incidence of the disease. It will be very difficult to prevent the spread of infectious diseases among children so long as we have overcrowding, defective ventilation, dust, and want of cleanliness in the homes, schools, and public conveyances. However, a great deal can be done for local conditions by looking after the children's teeth, by seeing that their teeth and jaws get plenty of exercise in chewing food, by keeping their mouths and nasal passages as aseptic as possible, and by removing any obstructions, such as adenoids and large tonsils.

During the last forty years in England and Wales the number of deaths due to venereal diseases has fallen from 92.6 to 48 in the 1,000,000 population. So far as these statistics are reliable, they seem to me to point to a great improvement in the treatment, as there is no reason to believe that there has been any diminution in the incidence. These diseases, from their deteriorating effects on the race, merit the attention of a statesman. A determined effort should be made to stamp them out, notwithstanding the pharisaical hypocrisy of the unctuous and righteous, who compound for sins they are inclined to by damning those they have no mind to. The suffering caused to innocent wives and children by those diseases call aloud for their elimination. With a combined international effort they might be stamped out.

What can be done by well-directed legislative measures in stamping out disease is well exemplified by the muzzling order of Mr. Walter Long (to whom the country has never shown sufficient gratitude), as there has not been a case of hydrophobia in Great Britain or Ireland for the last fifteen years.

In England and Wales in 1909 there were 914,472 children born alive, and there were 1,429 mothers who died from septic diseases associated with parturition; there were also 3,171 women who died from diseases caused by or associated with pregnancy and child-bearing, but who had not produced viable children. The net result is that 1 woman died for every 199 children born alive. A large number of these women should never have been pregnant, and many died from preventable diseases which were not prevented. There is plenty of scope here for prevention, not only in advising women not to undertake risks which will prove their deathblow, but also by saving valuable mothers from septic infection. This can be easily accomplished by a little trouble before parturition in attending to the health of the mother, and if any pathogenic organisms are found in the *via naturalis* an appropriate vaccine should be administered previous to parturition. I know an ophthalmic surgeon who will not do a cataract operation until the conjunctival sac has been prepared and a bacteriologist pronounces it free from microbes. Why do gynaecologists not undertake somewhat similar precautions in the case of the parturient woman? The vaunted aseptic gynaecology of which we hear so much is not sufficient; there may be a breakdown in the technique, and, moreover, the germs may be there before the arrival of the asepsis.

The practical disappearance of erysipelas from hospital wards must largely account for the lessened death-rate from this disease. We must give the surgeons due credit for this diminution; in fact, I would like to give them the whole credit, as, so far as preventive medicine is concerned, very little can be placed to their credit. About the only diseases which they attempt to prevent are those which spoil their operations—erysipelas, pyaemia, and septicaemia. The surgeons largely live on the failures of the physicians and general practitioners, and I hope they will not take any umbrage at what I say here and in other parts of this address. They can, if they choose, put down my remarks to envy, jealousy, and all uncharitableness, but I shall not acknowledge any malice. I intensely admire their work and envy their fees, which are, like the falls of Niagara, magnificent.

In regard to rheumatic fever, there has been during the last forty years a marked fall in the death-rate, which appears to me to be more due to improved methods of treatment than to any lessened incidence of the disease. Although rheumatic fever is not very fatal, yet when we take into account that it is the chief cause of heart disease in the young, it must be looked upon as a terrible disease. Every child with rheumatic hereditary tendency should be well protected against wet and cold. Every affection of the nose and throat, and, in fact, the whole digestive tract, should receive immediate medical attention, as it is through these pathways that the rheumatic poison or organism is introduced. Immediately on the slightest appearance of this disease the milk and carbohydrates, which are apt to undergo acid fermentation, should be cut off, and red meat, which supplies ammonia to neutralize the sarcolactic acid in the muscles, should be freely given. For flushing out the system there is nothing better than hot water, but the water should not contain much lime. In order to save the valves of the heart, the citrates of sodium and potassium should be freely administered. As specific treatment the salicylates still hold their sway, the vaccine treatment being still in its infancy. Parents who transmit a hereditary tendency to rheumatism to their offspring have a serious responsibility which they cannot honestly transfer to Providence, and therefore they should themselves exercise a provident care over their children. There is no necessity for coddling, but the children should be adapted, or rendered adaptive, to the environment; cold sponging every morning, sufficient to induce healthy reaction, has a good protective influence. Fresh air, exercise, sufficient clothing, moderate diet, especially in carbohydrates, and general attention to the digestive tract are all necessary.

Diseases of the blood vessels, heart, and kidneys are on the increase, no doubt largely due to greater wear and tear, more worry and anxiety in life. From these three diseases, including cerebral haemorrhage, the death-rate per million living in 1909 was: In England and Wales, 2,708.4; in Ireland, 3,170; and in the eight principal towns in Scotland, 3,234; in Ontario, in 1907, 2,172. If these deaths occurred among the wastrels, it would perhaps not matter much, but this mortality to a large extent occurs among the most hard-working and most energetic men and women in the prime of life, from 35 to 65 years of age. One often hears patients say that they have never been ill a day in their lives, when an examination of the heart, kidneys, and blood vessels shows disease of fifteen to twenty years' standing, and the tenure of life reduced to a few years at most, and yet many of these conditions were preventable. Of course, many a man may prefer to lead a very active and short, but to him enjoyable, life rather than drag it out to an inordinate length. It is only with healthy blood vessels that any one can hope to retain his mental and bodily vigour, and expect to attain to a green old age. I know that there is another view of life, and that many men do not consider old age desirable. When man has ceased to be a productive agent, intellectually or physically, they look upon him as a mere cumberer of the ground—an obstacle in the path of progress which should be removed.

Diseases of the heart, in the vast majority of cases, arise from causes acting on the periphery, and by preserving healthy blood vessels—an end very easily attained if people were content to be intelligently directed—one can prolong a healthy and vigorous existence for many years. I have delivered several addresses on arterio-

sclerosis and allied subjects dealing with the prolongation of life, but I cannot enter into these matters here, as they would require several hours for their exposition. However, I may say that the lime salts play a very important rôle in these diseases, and some excellent work on calcium metabolism and diseases of the blood vessels has been done in Montreal by Oskar Klotz, Professor Adami, and others.

With many authorities it is not the popular method to anticipate disease; they prefer to get hold of a case of heart-block, cardiac arrhythmia, or angina pectoris, and then they can make something out of their cases in more senses than one. But I want to educate the public into the habit of taking an interest in their own health. We have here got a large field for preventive medicine, but it is very difficult for a practitioner to prevent disease when he is not consulted. To my mind it is very deplorable to find many of the ablest men of the day cut off in the prime of life and vigour of manhood from disorders of the circulation, which are much more easily prevented than some of the so-called preventable diseases. The distinguished man who coined the expression, "If preventable, why not prevented?" himself died of preventable disease.

In England and Wales the mortality from all forms of malignant disease has steadily risen since 1860 to 1909—in the male population from 210 to 826, and in the female population from 480 to 1,071 in the million living. In Ireland the earlier statistics were not very reliable, but in 1909 the death-rate to the million living was only, among males 750, and among females 850. In the eight principal towns of Scotland the rate for both sexes was 1,073, and therefore higher than either England or Ireland. In Ontario in 1907 the rate was 626. In England, where tuberculosis is steadily declining, cancer is just as rapidly increasing, and in Ireland both diseases are rather stationary, but the cancer death-rate is 9 per cent. lower among males and 11 per cent. among females than in England and Wales. So the higher tuberculosis death-rate in Ireland has its compensations. There have been in recent years great improvements in the surgical treatment of malignant diseases, and we are getting a little nearer the solution of the problem of their nature and prevention, but not quite so near as some would have us believe. Even now a great deal can be done towards their prevention. If all sources of constant irritation, internally and externally, were removed, the occurrence of these diseases would be frequently obviated. Metchnikoff says: "Stagnation is a familiar cause of disease, and is the probable cause of the frequency of cancer of the stomach." Its selective sites in the large bowel are those where there is stagnation and irritation. In cancer there is increased alkalinity of the blood with a diminution in the amount of free lime; the same condition may appertain in the tissues, but not, as a rule, in the same degree, as the lime taken up by the blood from the intestinal mucosa may be partly discharged into the tissues in the process of elimination. Recently Professor Benjamin Moore and his coadjutors have shown that the deficiency of free HCl in the stomach occurs no matter where the cancer is situated.

Myositis ossificans traumatica is a comparatively rare affection, and I should scarcely have considered it worthy of attention here only for two papers in a recent issue of the *Lancet* by two eminent London surgeons. These gentlemen have a good many conjectures as to the nature and causes of this affection, and, largely on the strength of skiagrams, these calcareous masses are spoken of as "bony," and microscopically said to be of the nature of cancellous tissue. They have not a single word about the amount of lime salts in the blood; and surely in the present day there is no justification for ignorance on this subject. When there is an excess of lime in the blood there is no more mystery about its deposition in an injured muscle than there is in a damaged artery. As in the artery, so in the muscle, the lime is deposited in the form of a calcium soap, and afterwards the fatty acid is replaced by carbonic and phosphoric acids; we then get a hard calcareous plate. These masses often disappear spontaneously when the calcium content of the blood, falls. The proper preventive and curative treatment is to see that there is no excessive amount of lime in the blood by regulating the diet, and the use of decalcifying agents. Massage and exercise of the injured part prevent the deposit, and hasten the elimination of lime from that region. It is less difficult to hasten the absorption of lime deposited in a muscle than to get rid of that in rigid costal cartilages, yet the latter feat can be accomplished with a little patience and trouble.

The failures of physicians and practitioners in the prevention and treatment of diseases of the digestive tract have provided a rich harvest for the surgeons, who, buoyed up with their successes, would now like to appropriate the whole region to themselves. I would advise them to make hay while the sun shines, for fear that the millennium should arrive sooner than they expect. Already the dawn of a new era is breaking forth, and under prevention there will not be much necessity for surgical interference.

I need not say anything about septic diseases of the mouth, which are well recognized by our profession, but unfortunately the public do not often recognize their danger, otherwise we should not see so many cases of pernicious anaemia.

A comparatively simple affection which occasionally occurs during the first few weeks of extrauterine life has been dubbed with the high-sounding title of congenital hypertrophic stenosis of the pylorus. There have been a great many learned disquisitions as to its nature and treatment by physicians and surgeons attached to children's hospitals, and now they are busily engaged trying to settle the question as to whether the treatment should be medical or surgical. This would be very amusing were it not for the fearful mortality which accompanies the efforts of both. The explanation is too simple to have attracted the attention of those gentlemen, and the explanation is simply that it is not congenital, but is due to an excessive amount of calcium in the stomach walls, and especially in that portion of the walls—the pylorus—which contains relatively the most muscular fibres.

If it were more generally recognized that even a minute trace of a soluble calcium salt produces a marked physiological effect on involuntary muscular fibre, not only would pyloric spasm, but a good many enterospasms, be more readily explained. No doubt a growing infant requires a good deal of lime, but even it can have too much of a good thing, and when a series of overdoses are concentrated in a particular organ the result is not what could be desired. The amount of lime in human milk varies considerably, and is apt to be greatest in the early period of lactation; moreover, the mother may be unnecessarily fortifying this secretion by herself drinking large quantities of milk and taking other articles of diet containing lime. In an unpublished thesis G. Claude Scott has shown that cow's milk contains five to six times as much lime as human, but in cow's milk, of the total lime, 72 per cent. is combined with the protein and 28 per cent. free, while in human milk only 44 per cent. is combined and 56 per cent. free. Moreover, the combined calcium in human milk is much less stable than in cow's milk. In such cases, when the infant is being fed on cow's milk, the milk should be stopped for a time, or at least it should be well diluted, citrated, and boiled some time before using. It is even better to add to the diluted milk a small amount of the citrate and about double the quantity of the bicarbonate of sodium, a mixture which not only splits off some of the fixed lime, but renders the free lime more insoluble. The value of the mixture is further enhanced by the addition of a minute quantity of an active potassium salt, such as the chloride, which hastens the relaxation of unstriped muscular fibre. The milk should always be boiled. When the infant is being fed at the breast we must get rid of the excess of lime by decalcifying the mother. This can be readily accomplished by cutting off for a necessary time all articles of diet containing lime, and by giving her a liberal allowance of such drugs as citrate and phosphate of sodium, lemon squash, etc. A teaspoonful of olive oil to the infant will have a more soothing effect on its stomach than a surgical operation. An opiate is often necessary to relax the spasm of the pylorus. Perhaps these cases would be much more common than they are only for the fact that infants vomit very readily without much apparent cause.

Gastric ulcer frequently occurs in young women after the establishment of the menstrual function; they become anaemic, suffer from constipation, and there is not only a deficiency of iron, but also of lime in their blood. By the

way of prevention, the calcium and magnesium salts are highly beneficial.

You do not often find a surgeon foolish enough to contract the fashionable disease, appendicitis. I believe in the United States you are not considered respectable if you have not had it. Personally I have never qualified for that mark of respectability, and I do not intend to do so. I am of opinion that if people were not so fond of keeping a cesspool in their interior the *Bacillus coli* and other organisms would not become virulent, and appendicitis would be a comparatively rare disease. A lady of a religious turn of mind once told me that she quite agreed with me on this point, "as man is a veritable sink of iniquity." A *Bacillus coli* vaccine is often useful in treatment.

I know a physician who considers himself a great authority on mucous colitis, and who freely prescribes milk; he might as well prescribe sandpaper. In these cases the insoluble lime soaps, especially those of stearin and palmitin, are very irritating to the large bowel. In such cases the blood often becomes deficient in lime because it is being rapidly excreted by the bowel. However, all insoluble lime preparations must be strictly avoided, also saturated fats, such as beef and mutton fats. Unsaturated fats, such as olive oil, cod-liver oil, butter, cream, and bacon gravy, can be freely used. Whatever lime is given must be administered in a very soluble form, such as the iodide or the glycerophosphate. In obstinate cases an examination of the flora of the intestine, and the administration of a suitable vaccine will prove useful. This disease is fairly amenable to judicious treatment, even without the assistance of the surgeon, and it is one which can be prevented. Some years ago there appeared in the *Lancet* a paper entitled "The Cause of Colitis, with Special Reference to its Surgical Treatment." This is the surgical and business way of looking at the subject. A less astute individual might have studied causation with a view to its removal and the prevention of disease. However, in the present day the public only pay for treatment, and have no right to any choice.

It should be worthy of the attention of surgeons and general practitioners to try and find out the cause of enlargement of the prostate gland, which not infrequently renders the lives of old men miserable. The surgeon may say, Remove it; but I would say, Find out and remove the cause, so that the necessity for the removal of the gland may disappear. This affection is not much in my line of work, but recently it has appeared to me to be at least associated with an excessive amount of lime in the blood and tissues. This is probably not the sole cause; there is likely some local irritation or some interference with functional involution; but I feel fairly confident that an excessive amount of calcium is an associated condition—a condition which has sufficient determining effect in stimulating hyperplasia to merit its removal. I have noticed the occurrence of this affection in men who have led exemplary lives, who have not considered wine the milk for old age, but who have preferred that from the cow. In these men I have found an over-supply of lime with deficient calcium metabolism, rigid costal cartilages, and calcareous deposits in the arteries.

The presence of lime is necessary in most glands of the body for the proper exercise of their respective functions, but when such glands as the female breast and the prostate in the male should cease to functionate and take on a process of involution it is not unreasonable to suppose that an excessive, and then unnecessary, amount of lime, especially when the blood is very alkaline, may play some part in the adenomatous growth or inflammatory hyperplasia which then occasionally takes place. Chronic mastitis, perhaps, most frequently occurs in single women the function of whose breasts has only been potential, but it is not the lime which is excreted either in milk or in the prostatic fluid that can work any mischief; in fact, the excretion of lime into the tissue of a diseased gland may serve as a cure. Moreover, the exercise of the function of the prostate is often protracted and its involution delayed. I have seen a large prostate and lively spermatozoa in a man over 80. If these suppositions be found correct, then the lines of prevention become more obvious.

Before concluding, I should like to say a few words on the last phase of life, old age. In 1909 the number of persons dying from old age per million persons living was in England and Wales 948, in the eight chief towns of Scotland 411, and in Ireland 2,029. In the latter country there were 192 males and 231 females who died at the age of 95 years and upwards. This does not speak badly for Irish longevity notwithstanding tuberculosis. In the whole of Canada in 1901 the rate was 1,115, and in Ontario in 1907 it was 1,180. This is better than Great Britain, but not much more than half the rate in Ireland.

I am not going to tell you how to prevent old age, most people are fairly successful on that score. I only propose to do a little soliloquizing—I do not know that I have ever met any one who really considered himself old. I once knew a physician of about 80 who was called in to see a professional brother about 20 years younger. At the consultation the old physician said about his younger colleague and patient, "After all, you know, he is getting an old man." Age is a very relative term, like heat and cold, and its importance somewhat depends on how the popular breeze is blowing. We do not exactly know in the present day what to do with our old people. We have not put Metchnikoff's idea as to their employment into practice, neither have we established Professor Osler's lethal chamber. There are some people who live too long for their reputation's sake. As I said on a previous occasion, a man cut off in his prime may be handed down to posterity as an intellectual giant, whereas if he had existed till his cerebral arteries became sclerosed, and he had become slow of thought and speech, or tended towards drivelling dementia, much of his former glory would have waned, and the memory of him would pass quickly into oblivion.

I am not now so much concerned with the prolongation of life as with the preservation of health—a sound mind in a sound body, the former can barely exist without the latter. We are not concerned with any useless attainment of longevity, but with the prolongation and efficiency of life. We are concerned with the efficiency and manhood of the nation. When a life ceases to be efficient it can retire into obscurity, or be withdrawn from circulation, and receive an old age pension. Paul Bert said about the aged: "They deserve congratulations, care, and consideration, but the prolongation of their lives does not demand any special solicitude from society." Paul Bert died comparatively young, perhaps if he had lived longer he would have modified his opinion. Since then we have humanely, and I think wisely, become more solicitous for the well-being of every one.

> Ill fares the land, to hastening ills a prey,
> Where wealth accumulates and men decay.

Whatsoever thine hand findeth to do, do it with thy might; for there is no work, nor device, nor knowledge, nor wisdom, in the grave, whither thou goest.

THE Italian Society of Internal Medicine will hold its twenty-first congress at Turin in October next (9th to 12th). The subjects proposed for discussion are progressive pernicious anaemia, the diagnosis of diseases of the pancreas, visceral arterio-sclerosis, and intravenous medication.

A HOSPITAL for twenty-four patients was opened in Great Malvern on May 29th, the funds for its erection and equipment having been provided by Mr. C. W. Dyson-Perrins. All accommodation for patients is at ground-floor level, and the building throughout is of the fireproof type. It is an open site in Lansdowne Terrace, and plenty of balconies have been provided. The architect was Mr. W. Henman, F.R.I.B.A., of Birmingham.

DR. JOHN GREASLEY, of Canterbury, was the recipient on May 29th of an illuminated address and a centenary jewel from the local lodge of Oddfellows, of which he is a member and which he has served as medical officer for some thirty-four years. There was handed to him at the same time an album containing the names of the subscribers to the testimonial, who numbered upwards of a thousand. The member of the lodge by whom the presentation was made said that it was not in his power to over estimate the work their surgeon had rendered to the order. There was no member of it who could not express his gratitude to Dr. Greasley for his kindly services in the cause of humanity, and they hoped he would be spared many years to continue his great work. In acknowledging the presentation, Dr. Greasley said that changes were taking place which they had never anticipated, and he hoped the National Insurance Bill would accord more generous treatment to the medical profession than was promised therein.

THE IMPORTANCE OF PNEUMONIA AS A CAUSE OF DEATH.*

BY

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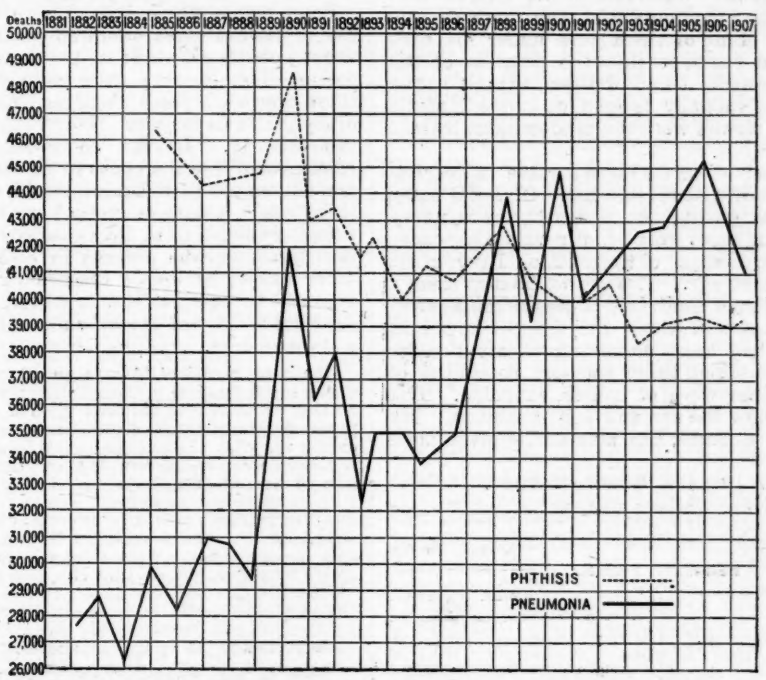
PNEUMONIA has been recognized as a distinct disorder as long as medicine has been an art. Hippocrates and all his successors treated of "peripneumony," recognizing the disease at its onset by only one of its symptoms—the pleural pain—which so often accompanies its onset. The viscid and blood-stained sputum of pneumonia was also well known to them. Hippocrates also distinguished between true pneumonia, which he called "peripneumonia vera," and "peripneumonia notha," a false or, as it became to be known later, a bastard peripneumonia, which appears generally to have been bronchitis or perhaps empyema. Laënnec elicited the physical signs of the disease, Rokitan·ky described its gross morbid anatomy, and, as a subsequent speaker will, no doubt, remind you, Weichselbaum discovered the micro-organism which we now regard as the immediate cause of this morbid condition.

Pneumonia, far from diminishing in frequency, has now attained the bad pre-eminence of actually causing in this country more deaths in a year than any other disease (irregular groupings by the Registrar - General excepted), and also of having caused in 1907 more than double the number of deaths it did in 1881.

I fancy that these facts will come as something of a surprise to many; I have therefore prepared a chart showing the number of deaths from pneumonia during the last twenty-eight years, and, for comparison, show on the same chart the deaths of what I should have considered before writing this paper to be the most fatal disease of the respiratory system—namely, pulmonary phthisis.



In the chart the number of deaths are indicated in the first column, the years at the heads of columns, and the numbers of deaths in each year underneath.

From an inspection of the chart it will be observed that the continuous line showing deaths from pneumonia is in 1881 away at the bottom, and the broken one which stands for phthisis away at the top, and that the respective deaths in the year were 23,700 and 47,500, phthisis killing twice as many as pneumonia. For the first eight years there is a slight rise in deaths from pneumonia, and a fairly steady fall in those from phthisis. About the year 1890–1 there is an increase in both, but that in pneumonia very much exceeds that in phthisis. In 1894 we find a rapid fall in pneumonia and a steady fall in phthisis. Phthisis rises again, but not much, to 1900, while at this time the rise of pneumonia deaths has been so great that the continuous line crosses the broken one. It falls below again in 1901, but since that date has been constantly above it, phthisis having fallen 11,000 below its maximum in 1883.

Of course, the explanation of the considerable rises of the continuous line in 1890 and 1900 to 1902 will have already struck you. The former corresponds with the first serious epidemic of influenza in our times, and the second with the recrudescence of the same disease. You will notice that the broken line rises in the same years, but I think we should not be wrong in assuming that the increase in phthisis deaths was due in many cases to pneumonic complications.

Now pneumonia, as far as I know, stands alone (or only with cancer) in its steady increase. Other respiratory diseases which might seem to be subject to the same conditions have not followed a similar course; and here I may venture on a digression and join issue with the medical officers of health and the Registrar-General, who continue to lump pneumonia with bronchitis, emphysema, and pleurisy.[1]

Dr. Boobbyer of Nottingham, in his latest report, says:

> It is still convenient to consider them together as affections of the same organs, having similar seasonal curves . . . and affected in their prevalence and fatality by the concurrence of similar acute specific maladies.

Against this dictum I can set the fact that the death-rate per million from bronchitis was, in 1881, 2,145, and in the influenza year (1890) 1,682, and is now (1908) only 1,092. Pneumonia had bounded up from 910 in 1881 to 1,372 in 1890; in 1907 was 1,380; and, though a slight decline set in in 1908, is still 1,180. Similarly, the deaths per million living from phthisis were: 1881, 1,825; 1890, 1,682; and 1908, 1,100. I give you these figures because it might be objected that in my chart I gave total deaths and made no allowance for increase of population. It will be clear, however, that though a rise in pneumonia deaths may be discounted by a rise in population, the fall in deaths from phthisis and bronchitis is appreciated by the population increase. The case mortality of pneumonia is quite an unknown factor. The latest text-books give 14.0 per cent., but it may well be greater; and we certainly know it to be greater in men of age 40–50.

Had this disease suddenly appeared among us we should have seen a kind of panic seize the public, and leagues would have been founded and large sums of money contributed to combat it; but because it is an old friend we see it calmly accepted as an inevitable concomitant, as well as a mode of termination, of life. Is it too much to hope that some form of antidote, whether by serum or other means, may be discovered in the near future?

*Introduction to a discussion on Pneumonia by the Leicester and Rutland Division of the British Medical Association.

REFERENCE.

[1] See Sir J. W. Moore in *Dublin Journal of Medical Science*, January, 1911.

SOME particulars of the medical side of the manœuvres of the United States army in Texas are given by Dr. N. S. Jarvis in a paper published in the New York *Medical Record* of May 27th. The army, which consists of 12,000 men, is served by four field hospitals, with four complete ambulance corps. The camp is supplied with water piped from the neighbouring city; carefully disinfected latrines are used, and solid and liquid refuse is cremated; the entire army underwent antityphoid vaccination and vaccination against small-pox; after one month no cases of typhoid had appeared. An expert bacteriologist examined the blood of every case of fever of forty-eight hours' duration, and sanitary instruction is given to officers and men.

SOME FEATURES OF AORTIC REGURGITATION IN YOUNG SUBJECTS.

BY

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AORTIC valve disease, causing regurgitation, in young subjects, presents some features of especial interest and importance, runs a course which in many respects is different from the same disease in adults, and gives a clinical picture which has certain distinctive features. Certain of the vascular phenomena which are consequent upon free regurgitation through the valve are seen in most marked and characteristic form in the young, partly, no doubt, from the more yielding nature of their vessels. Compensatory changes in the heart and circulation are rarely satisfactorily established, and the disease is an even more serious one, and runs a shorter course than in adults.

In all the cases mentioned in this paper the patients were so ill as to require admission to hospital, and I have limited myself to in-patient cases, because of the greater opportunity for systematic observation. It follows also from this selection that I deal only with the more serious cases of the disease. Many of them were under my care at intervals for several years, so that the progress of the affection could be followed. In all of them, though in the large majority other valvular lesions co-existed, aortic regurgitation and its results were the predominant feature in the case.

The general incidence of aortic valve disease in hospital in-patient practice is not without interest. Of 3,300 cases admitted to my beds during the time the cases under consideration occurred, there were 96, or nearly 3 per cent., of cases of aortic valve disease; of these 33, or 1 per cent., were under 28 years of age. The age of 28 may seem a somewhat arbitrary upper limit, but it was taken as such in order to include 4 cases in whom the disease began in childhood, and who had been under my observation for many years. Cases in which there was any possibility of congenital heart disease were, of course, excluded. The tables which follow show the sex and age incidence. My colleague, Dr. Carey Coombs, has also kindly given me a list of out-patients under 28 suffering from aortic disease. In both in-patients and out-patients the main incidence of the disease lies between 10 and 20 years. The youngest of my own cases was 12 years old, but in Dr. Coombs's series there are four patients between 6 and 10 years. With regard to the adult cases, it may be added that the Bristol Hospital supplies an industrial district containing large docks, and in which the males are mostly engaged in laborious occupations involving heavy strain.

AORTIC VALVE DISEASE (REGURGITATION).

I.—*Above 30 Years of Age.*

Years of Age.	Total.	Males.	Females.	+ Mitral Disease.	
				Males.	Females.
30 to 35	14	13	1	—	—
35 to 40	12	12	0	—	—
40 to 45	8	4	4	—	3
45 to 50	16	13	3	—	3
50 to 60	7	4	3	—	1
60 to 70	5	4	1	1	—
70	1	1	0	—	—
Total ...	63	51	12	1	7
		81 per cent.	19 per cent.	12.6 per cent.	

II.—*Under 28 Years of Age.*

Years of Age.	Total.	Males.	Females.	+ Mitral Disease.	
				Males.	Females.
12 to 15	9	4	5	3	2
15 to 20	12	8	4	3	2
20 to 25	7	3	4	2	1
25 to 28	5	1	4	1	2
Total ...	33	16	17	9	7
		48.4 per cent.	51.6 per cent.	48.4 per cent.	

III.—*Out-patients Under 28 Years of Age (Dr. Carey Coombs).*

Years of Age.	No. of Patients.
6 to 10	4
10 to 15	10
15 to 20	16
20 to 25	3
25 to 28	9
Total	43

Males, 24; females, 18 = Males, 57 per cent.

Some points which appear from these tables are that in the in-patient cases under 28 years males and females are about equally affected; in the out-patient cases the proportion of males is a little higher, 57 per cent.; whilst in those above 30 years there are more than four times as many males as females. This difference is connected with the etiology. In the 33 in-patients under 28 acute rheumatism was the cause in 21, chronic rheumatism in 4, and chorea solely in 4, a total of 29, or 87 per cent., in which there was a history or present evidence of some rheumatic manifestation, and in Dr. Coombs's out-patient cases such manifestation was present in 83 3 per cent.; whilst the other causes of aortic disease in adults are, of course, absent. In one patient, however, aged 22, there was a doubtful history of the valvular mischief being caused by a severe strain.

One case, a girl of 14, was an example of the rare form of aortic incompetence produced directly by mechanical dilatation of this orifice. She suffered from a small white kidney, and presented in marked degree—unusually so for a child—the cardio-vascular changes of renal disease. The systolic blood pressure was 190–200 mm. Hg, and during the first part of her stay in hospital there was heard only a very accentuated loud, ringing aortic second sound. After a time, during which she was steadily getting worse, a faint aortic diastolic murmur appeared following the second sound, and this gradually became longer and more distinct; with this, the left ventricle dilated, the lungs became engorged, and she died three or four weeks later of heart failure and uraemia. At the *post-mortem* examination the aorta and aortic orifice were dilated, and the valve did not hold water, but the segments, except for being a little opaque, were quite healthy in appearance, and were not shrunken.

This is the clearest case I have seen in which aortic regurgitation presumably occurred as the direct result of excessive blood pressure, for we were able to watch the process throughout.

Two of the 33 cases were known to develop infective endocarditis. It is interesting to note that of the 4 cases which owned chorea only as the cause, in 2 patients there had been eight, and in 1 seven attacks.

Another point is that, although it is by no means infrequent to find pure or uncomplicated aortic regurgitation, with a diastolic murmur only, in adults, this seems to be decidedly uncommon in younger patients. In 27 out of the 33 patients other murmurs were present, although as regards signs and symptoms the aortic lesion predominated the case. In 9 of the 27 the second murmur was an aortic systolic one, which of course does not by any means imply actual aortic stenosis, nor necessarily any serious complication; in the other 18 there were mitral murmurs. This difference from the adult is probably again connected with the etiological factor of rheumatism.

Professor Clifford Allbutt[1] alludes to extension of pericarditis to the aortic area as a cause of aortic valve disease. In five of my patients acute pericarditis was observed at some time, either preceding the appearance of the diastolic murmur, or both murmur and pericarditis were present on admission. Probably more patients were thus affected, but these were the only attacks actually observed. In those cases in which aortic disease was complicated with mitral regurgitant murmurs, in

at least four cases the aortic disease was certainly primary, and later on, as the heart enlarged, mitral regurgitation ensued. In another a murmur, which was at first mid-diastolic and regarded as an aortic murmur conducted to the apex, became three years later a definite and characteristic presystolic crescendo murmur.

In the majority of these cases of combined lesion both valves were affected, as evidenced by murmurs, at the time they first came under observation. It is generally held that the usual course is for the rheumatic process to spread from the large mitral flap to the adjacent aortic valve segment; but in cases of acute rheumatism, when the heart is first involved, it is certainly not uncommon to hear an aortic systolic murmur accompanying the more obvious signs of mitral valve disease; and I believe that in the cases under consideration the affection of the mitral valve is very often secondary, and the mitral regurgitation due to weakening of the ventricular wall from recurrent rheumatic affection of the heart muscle (carditis), and consequent dilatation of the mitral orifice.

With regard to symptoms, as in cases of aortic disease generally, pain in the precordial region is the most frequent and prominent symptom in young subjects. Many of the patients suffered from attacks of severe angina pectoris. When angina occurs in these young patients it is often remarkable for its frequency; three or four attacks, or even more, may occur in each twenty-four hours, and that at intervals over a long period of time. Although the pain is severe the patient does not, however, look so very ill as an older patient in an attack of angina pectoris, nor is there the same fear of impending death. None of my patients died in an anginal attack. Next in frequency to pain comes palpitation, or rather a violent throbbing of the heart and great vessels. Then comes dyspnoea, either persistent on exertion or in the form of attacks in which the patient gasps for breath and has a most distressing sense of being unable to breathe. Attacks of syncope may occur, and in one case this was the cause of death.

Certain forms of haemorrhage are not infrequent. Epistaxis is by far the most common: in two of my patients it was profuse and often repeated; in two others haemoptysis occurred several times, it was slight in amount but continued two or three days; in one of these there was a mid-diastolic murmur and thrill, so that mitral stenosis may have been present as well as aortic disease; in the other there was pure aortic regurgitation. It is well to bear in mind this possibility of haemoptysis in the aortic disease of the young. In one case associated with mitral regurgitation there was a smart attack of haematemesis, and this also occurred in one of Dr. Coombs's patients; a purpuric rash was observed in another patient, with no evidence of malignant endocarditis. One patient with aortic disease (purely) of eight years' standing, of no great severity and without much enlargement of the heart, had a typical attack of embolism at the age of 20, resulting in right hemiplegia and aphasia. In another patient, aged 18, persistent insomnia and mental symptoms in the form of delusions were the prominent features. Young patients do not, however, suffer from insomnia as older ones do. Oedema, as in cases of heart disease generally in children as compared with adults, is conspicuously absent until the terminal stages of heart failure. A symptom that appears with somewhat unexpected frequency is albuminuria. In 13 out of the 33 cases albuminuria was present on admission to hospital. It did not occur with greater frequency in those patients who had a mitral as well as an aortic lesion. As a rule, the amount of albumen was small, and in 11 patients out of the 13 it disappeared after a few days' rest in bed. Renal casts were either absent altogether, or there were a very few hyaline ones. In the other two patients there was a considerable quantity of albumen, which persisted and was due to coincident renal disease.

With regard to the changes in the heart itself, great enlargement of it is an even more marked feature of aortic disease in children than it is in adults. The bulging of the precordial region, the violent pulsation and shaking of the small chest, are frequent and striking clinical signs. With this goes in a considerable number—36 per cent. of my cases—pronounced dilatation of the aorta, causing extension of dullness to each side of the sternum and upwards, even as high as the sternal notch. Over the same area, or generally extending considerably beyond it on each side and above, is often to be felt a thrill, and the aorta itself and the thrill may be felt above the sternal notch. These phenomena are rarely seen in older to the same extent as in young patients, and may be attributed partly to the more yielding nature of the aortic wall in the latter and to its stretching more readily under the constantly repeated excessive strain, and partly to the weakening of the wall by recurring attacks of rheumatic infection. The large vessels share to a less extent in the dilatation. In one case, in which these signs of dilatation of the aorta were clinically very conspicuous, although *post mortem* the aortic valve was quite incompetent to tests and the orifice much dilated, the aorta itself was very little, if at all, above the normal size, so that the great dilatation observed clinically was a dynamic and not a permanent feature, and the walls of the large arteries also appeared healthy.

Certain abnormal sounds or murmurs are heard on auscultation of the arteries in cases of aortic regurgitation. As they only occur when the regurgitation is free, they are, apart from their clinical interest, of some importance as indicating severity of lesion. These signs are especially frequent and well marked in young subjects. I allude only to sounds heard when the bell of the stethoscope, or preferably its small end after removal of the wooden or ivory chest piece, is placed as lightly as possible over the vessel, and not to the murmur which is produced when an artery is compressed or narrowed at one point by pressure. The abnormal sound most often heard is an abrupt, sharp, single knock, snap, or "thump"—the latter word sometimes exactly represents the sound—occasionally there is a double "thump, thump." Although this sound can hardly be connected with cardiac murmurs, I find that when the double one occurred there was an aortic systolic as well as a diastolic murmur. These sounds were audible in as many as 15 out of the 33 cases, and in the majority in the most distal arteries, the radial and the dorsalis pedis. In a few instances, the single thump was followed by a diastolic soft murmur, but the latter could only occasionally be traced into the distal arteries; as a rule it was not audible beyond the brachial and femoral arteries—that is to say, the "thump" can be followed far distal to the murmur. In two cases double murmurs, systolic and diastolic, were distinct in the arteries, and in one of them the first element was of an unusual character, being loud and squeaking. Capillary pulsation was not especially marked nor invariably present in the cases with these abnormal arterial sounds. So far as my experience goes, this peculiar "thump" is not met with outside aortic regurgitation, certainly not in arteries so distant as the dorsalis pedis. It is difficult to time, but it seemed generally to follow the arterial wave immediately; if so, it may be due to the sudden relaxation of the over-stretched arterial wall—the murmur which occasionally followed the "thump" was certainly diastolic.

With regard to the heart murmurs, the only points to which I wish to allude in the aortic diastolic murmur of the young subject are that it is often very long, running almost up to the first sound, and to its loudness or harshness, and its variability. The murmur is more frequently heard at the apex than in adults—Flint's murmur; this was the case in 51.5 per cent. of the patients, and in 34 per cent. it was accompanied by a well-marked diastolic thrill. Not infrequently the murmur at the apex is mid-diastolic, and then the diagnosis between a mid-diastolic murmur of aortic origin and one due to mitral stenosis may be extremely difficult. Especially is this the case where the heart affection is rheumatic, and enlargement of the right heart or a systolic apex murmur shows that the mitral valve is involved. I believe that the dictum is correct that in cases where Flint's murmur is present in which there is a history of rheumatism it is impossible to exclude with certainty mitral stenosis. In one case, during the course of about six years' illness, the transformation of a mid-diastolic apex murmur into the typical crescendo murmur of mitral stenosis was watched. On the other hand, a short diastolic murmur limited to the first part of the long silence is not, I believe, of mitral origin.

There is one point with regard to the conduction of an aortic murmur in the child. It comes out, from the analysis of these cases, that in every instance in which the aortic incompetence was concomitant with enlargement

(dilatation) of the right heart (from mitral disease) the aortic diastolic murmur was loudly and plainly conducted down and outside the right edge of the sternum; the conduction might be to the apex as well, but that to the right of the sternum was very marked.

Mention has been made above of the appearance of mitral regurgitant murmurs in the course of heart disease which began as aortic, and in which the mitral affection may fairly be inferred to be secondary to it. No relief appeared to be thereby afforded to the cardiac disorder.

Summary.

	Males.	Females.	Total.
Aortic regurgitation purely ...	2	4	6
Aortic regurgitation, with aortic systolic murmur ...	4	5	9
Aortic regurgitation, with mitral regurgitation	5	4	9
Aortic regurgitation, with mitral stenosis only	?1	0	?1
Aortic regurgitation, with aortic systolic murmur, and also mitral disease	5	3	8

	Cases.	
Great enlargement of heart present in ...	21	
Dilatation of aorta	12	
Flint's murmur	17	
Flint's murmur, with thrill at apex ...	11	
A "knock" audible in peripheral arteries ...	10	
A "knock," together with a murmur ...	5	
Albuminuria present in	13	
Albuminuria disappearing rapidly	11	
History of previous acute rheumatism ...	21	
History of rheumatic pains only	4	29
History of chorea only	4	
History of scarlet fever only	1	

A few remarks as to treatment may be added. Of course, in cases severe enough to be admitted to hospital rest often over a long time is necessary. Restriction of the amount of fluid taken, so far as can be done without discomfort to the patient, is valuable, by relieving the work of the heart by after a time diminishing the amount of fluid in circulation. In the absence of rheumatic manifestations or of fever, I have not seen much benefit from the continued use of the salicylate group of drugs; short courses may be useful in relieving precordial pains. The iodides, in combination with salicylates or alone, have not seemed to me to influence the course of the disease, and the iodides given for some time have not prevented the occurrence of attacks of angina or acute dyspnoea in those subject to them. Digitalis was given whenever there was signs of heart failure according to the indications in each individual case as they occurred from time to time; it is more often necessary than in the aortic disease of adults, partly because of the far greater frequency of implication of the mitral valve. As to relief of special symptoms, the most urgent are the very distressing and sometimes alarming attacks of angina pectoris, which are not infrequent. In these young patients amyl nitrite is the most effectual drug. In several cases, nitro-glycerine, and the other nitrites, completely failed both to relieve and prevent the attacks, when amyl nitrite gave prompt relief, but of course did not prevent their recurrence. Possibly it owes its good effects to its rapid action, as the attacks, though severe and sometimes very frequent, are as a rule of short duration. The dose inhaled has sometimes to be increased up to ♏x to ♏xij at a time to maintain the effect, but seems to entail no unfavourable consequences. One girl, who at times during the last two years of her life suffered from six to ten sharp paroxysms daily, used to inhale as much as ʒjss to ʒij amyl nitrite in the twenty-four hours, and no other drug did her any good. The next most urgent symptom is the attack of dyspnoea or suffocation, which is probably a form of angina. Here again amyl nitrite often relieves, but sometimes caffeine and ammonia is more effectual.

Not so immediately urgent, but distressing from its persistency, is the excessive or violent pulsation of the greatly enlarged heart. This palpitation is often the subject of the patient's chief complaint. I have found a mixture of liq. arsenicalis, ac. hydrocyan. dil., and tinct. veratri viridis, given for some time, most useful in the treatment of this symptom, which is often a most troublesome one, even when the patient is at rest in bed, and when there is no evidence that the heart is not able, in spite of the abnormal conditions, to maintain an efficient circulation. In other cases, of course, this symptom is one of the expressions of the failure of the heart to do this, and must be treated accordingly.

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[1] *System of Medicine*, second edition, 1910, vol. vi, p. 421.

BLOOD PRESSURE IN MENTAL DISORDERS.

By

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Recent investigation tends to disprove that there is any constant correlation, as hitherto more or less generally accepted by alienists, between certain types of mental disorder—namely, states of emotional exaltation and depression—and definite modifications of the arterial pressure. It is chiefly to Dr. Maurice Craig[1] in this country that the view is to be attributed that states of emotional exaltation are usually associated with low pressures and states of emotional depression with high pressures. Of the work recently published which fails to confirm this relationship that of Dr. John Turner[2] is the most important. He concludes from his observations that the blood pressure bears no definite relation to the mental state, but only has a constant relation to the age period.

The observations on which this paper is based were made on cases forming a considerable proportion of the female admissions to the Suffolk District Asylum during a period of two years. The instruments used were Martin's modified Riva-Rocci, and Leonard Hill's latest pattern wrist instrument. In the majority of cases both instruments were used in making the earlier observations, and from time to time the larger one was used to confirm the readings obtained by the wrist instrument. With few exceptions both forms of apparatus were found to give similar results, but Hill's sphygmometer, besides being more portable, has advantages in dealing with the insane; it is less imposing, and in certain types of depressed patients nervous influences appear to cause unduly high readings. In these cases, by spending a quarter of an hour or more taking readings at frequent intervals, I have frequently found that the pressure gradually falls until it reaches a constant point; whereas in cases of mania, more especially those with marked excitement, the same influences do not appear to be at work. The higher readings of earlier observations have been noted by other observers. In the cases here summarized the observations were made about noon with the patient sitting, and resting the forearm on a table so that the artery being examined was approximately at heart level. In the large majority of cases an average was struck from the weekly readings, 3 to 5 in number, immediately following the admission of the patient, and subsequently in many of the cases observations were made at monthly and then longer intervals in patients remaining under treatment. There were some cases in which the number of observations was necessarily limited to one or two, and a few in which single observations were made have been included where I was satisfied with their accuracy. I only attempted to read the manometer scale to the nearest 5 mm., which is accurate enough for ordinary clinical purposes. The pulse-rate was observed at the time, and cases with marked irregularity of rhythm excluded; a note was also made as to the condition of the vessel wall as judged by the fingers. In all cases coming under the headings of mania and melancholia, the observations from which the averages were taken were made while the patients exhibited respectively definite exaltation or depression of the emotional tone.

Maniacal States.

The observed cases numbered 33. They had an average age of 33 years, and showed an average systolic pressure of 115 mm. The maximum pressures were obtained in three patients aged 56, 56, and 52 years, with readings of 150, 140, and 135 mm. respectively. The minimum pressure was 100 mm., observed in 5 cases aged 19, 21, 30, 30, and 46 years. The radial arteries in these cases were not palpable or barely so. There were included among these 33 cases 10, with an average age of 29 years, of a

particularly acute type, exhibiting more intense and continuous excitement, and the average duration of whose attacks was seven days before coming under treatment; these also gave an average systolic pressure of 115 mm. Observations made during the subsequent progress of many of these cases showed in 5 instances a rise and 5 instances a fall of from 5 to 20 mm. on the return of the emotional tone to normal, 2 cases being recoveries, while 3 cases showed no change under the same circumstances.

MELANCHOLIC STATES.

In 49 cases, with an average age of 48.5 years, there was an average systolic pressure of 125 mm. The maximum readings were 165 and 155, in women aged 50 and 64 respectively; both had sclerosed radial arteries. The minimum pressure was 95 mm., in a woman aged 36 with radials scarcely palpable. This class includes 18 cases of the agitated, excited type, having an average age of 54 years, but the same systolic pressure of 125 mm. Continued observation of many of these cases showed a rise in 5 instances of from 5 to 20 mm. on the improvement in the emotional tone, 3 of them being recoveries. Two cases showed a fall of 5 mm. under similar circumstances. One case on becoming excited rose 10 mm., and 2 cases fell 15 and 20 mm. on failing physically. One case gradually rose from 120 to 160 mm., associated with amelioration of the mental symptoms; she had marked arterio-sclerosis. Two cases showed falls of 10 and 20 mm. on passing into stupor, the second of these rising to the original point on improvement in the mental state. The average duration of the attacks in this class was one and a half months.

STUPOROSE STATES.

In 6 cases of an average age of 28 years the average systolic pressure was 110 mm. The maximum and minimum were 125 and 95 mm. One case rose 5 mm. and another 20 mm. on mental improvement.

DELUSIONAL STATES.

There were 15 undifferentiated cases of this type which showed no noticeable excess in the emotional tone. The average age was 43 years and the average systolic pressure 125 mm. The maximum was 170 mm., in a patient aged 63 with a markedly sclerosed radial artery. The minimum was 100 mm., in a case aged 37 with soft arteries. One case rose 10 mm. on improving mentally, and one fell 35 mm. on developing phthisis.

CONGENITAL STATES.

In 12 cases, mostly epileptics, with an average age of 25 years, there was an average pressure of 100 mm. The maximum and minimum were 120 and 85 mm., and in all cases the radial arteries were not palpable, or barely so, with the exception of the case giving the maximum reading, in which the artery was readily palpable.

SENILE STATES.

In 10 cases, with an average age of 74 years, the average systolic pressure was 140 mm.; the maximum and minimum were 200 and 115 mm. One case aged 78 with a pressure of 125 mm., and one aged 77 with a pressure of 135 mm., showed marked sclerosis of the radials, both being well physically; while in all the others the thickening was about normal for their age.

High pressures have been recorded in confusional states, but there were only 2 cases of this type observed; one aged 65, and with not abnormally thickened arteries, gave a reading of 145 mm., and the other, with marked arterio-sclerosis, gave most variable readings between 115 and 165 mm. at different times.

INFLUENCE OF DRUGS.

In 2 of the maniacal cases, while taking potassium bromide, which had a favourable influence on the excitement, there were falls of 10 and 15 mm.; 2 melancholic cases fell 5 and 20 mm. under the same drug, becoming more composed mentally. Under the administration of opium and veronal two melancholic cases maintained a lower level by 15 mm., with accompanying amelioration of the symptoms.

ALBUMINURIA.

Two cases with a transient trace of albumen but no departure of the blood pressure from the normal, are included in the foregoing results, but 3 cases having a persistent and considerable quantity are omitted. One (a case of quiet melancholia, aged 22 years) had an average pressure of 140 mm., rising on improvement, ending in recovery, to 180 mm. A second, aged 34, a delusional case with no excess of the emotional tone, had a pressure of 150 mm., rising gradually to 190 mm., with no obvious change in the mental state. A third case, aged 74, was of the quiet, depressed type, and maintained a pressure of 175 mm.

In several cases, irrespective of the mental state, considerable variations in the systolic pressure were observed from time to time without any appreciable change in the affective tone. Of six patients who at later periods developed tuberculosis, five had pressures below the normal for their age periods. I think Sir Lauder Brunton has similarly observed a relation between low pressures and phthisis incidence.

In Table I the various mental states have been correlated with three grades of systolic pressure, and the middle grade (110–120) may be taken as representing the limits within which fall the pressures of the majority of normal adults up to middle life. In calculating the average age for each grade of pressure the congenital and senile states have been excluded, as their relation to lower and higher pressures respectively, which is fairly constant, would tend to obscure the results.

TABLE I.

Type of Mental Disorder.	Under 110 mm.	110 to 130 mm.	Over 130 mm.
Maniacal states	11	19	3
Melancholic states	5	31	13
Stuporose states	3	3	—
Delusional states	2	9	4
Congenital states	7	5	—
Senile states	—	4	6
Average age (excluding congenital and senile states)	32.5 years	40 years	56 years

In Table II it is attempted to correlate all the cases with the exception of the congenital, according to their pressure grades, with the three age divisions suggested by Sir Clifford Allbutt, and these latter subdivided so as to show a relation between the various pressures and the condition of the radial arterial wall as estimated by palpation. This is perhaps a somewhat rough and arbitrary method.

TABLE II.

	Under 30 years.			30 to 60 years.			Over 60 years.		
	Vessel Wall.			Vessel Wall.			Vessel Wall.		
	Not Palpable.	Readily Palpated.	Sclerosed.	Not Palpable.	Readily Palpated.	Sclerosed.	Not Palpable.	Readily Palpated.	Sclerosed.
Under 110 mm.	6	1	—	12	—	2	—	—	—
110 to 130 mm.	13	3	3	21	15	2	—	6	4
Over 130 mm....	1	—	—	—	5	5	—	1	14

INFLUENCE OF ARTERIAL WALL ON OBSERVATIONS.

The influence of the vessel wall on the manometer readings is still a doubtful point. Although a soft artery may have little effect in obscuring the real pressure, it seems to me that marked sclerosis must modify the readings considerably. I have records of 3 cases of arterio-sclerosis which, owing to a poorly nourished bodily condition, allowed of the arteries being palpated with particular ease, and of the point of obliterative pressure in the posterior tibial artery, where it passes behind the internal malleolus, being ascertained with considerable accuracy. With the patients in the horizontal position as nearly as

possible, simultaneous observations were made by means of two armlets connected to the one manometer. In this way differences were observed in all the cases varying from 6 to 25 mm.; the differences in the limbs of the opposite sides did not correspond. In some instances the tibial reading was higher, and in others lower, than the brachial, but I have generally found both brachials to correspond. In a few cases also, when using the Riva-Rocci and Hill's instruments together, I have found a constant difference of 30 mm. or less between brachial and radial arteries, the latter being the lower. I assume that in all these cases the difference may be regarded as an expression of the variation in the resistance of the vessel walls under observation, but it of course gives no idea of the total resistance offered to compression. Then, on the other hand, one not infrequently obtains low readings in marked arterio-sclerosis.

CONCLUSIONS.

1. That maniacal and melancholic states are not associated with any constant modification of the arterial blood-pressure, nor any marked departure in it from the normal.
2. That the same applies to other types of mental disorder with the exception of congenital states in which the pressure tends to be low.
3. That the pressure bears some relation to the bodily tone, and increases as age advances; and that as melancholia is on the whole a disorder of more advanced years than mania it is only associated with higher manometer readings on this account.
4. That sedative drugs have a slight influence in lowering blood pressure.
5. That the manometer readings bear a fairly close relation to the sclerosis of the vessel wall.

REFERENCES.

[1]Blood Pressure in the Insane, *Lancet*, vol. i, 1898. [2]Blood Pressure and Vascular Disease, *Journal of Mental Science*, July, 1909.

THE INTERPRETATION AND SIGNIFICANCE OF SOME IRREGULARITIES OF THE PULSE.*

BY

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IN the textbooks of medicine the scanty accounts which are given of pulse irregularities do not elucidate their sources of origin. Of late years, however, an immense amount of work has been done upon this subject, both experimentally and clinically, and we now possess some real information as to the mechanism by which irregular pulses are produced. In clinical medicine methods of recording and interpreting irregularities of the pulse at the bedside have been elaborated.

Of this work Dr. James Mackenzie has been the pioneer. In 1902 he published his book on *The Study of the Pulse*, in which he gave descriptions of apparatus which he had invented for recording the movements of the various chambers of the heart, and he classified and described the various pulse irregularities. Since the publication of his book numerous workers have followed along his lines, and an immense amount of literature on the subject has arisen. The result has been to confirm Mackenzie's work in nearly all points, and to afford an insight into the mechanism of the heart's action which was previously unknown.

In most cases of irregular pulses it is impossible to know what the various chambers of the heart are doing without some graphic method, and without such a method it may be impossible even to detect an irregular pulse. Previous to the knowledge which graphic methods afford, I think that the main tendency has been to regard most pulse irregularities as having some unfavourable significance, though in reality sometimes an irregularity of the pulse has an important bearing, and sometimes appears as a harmless accident.

On the one hand, an irregular pulse may have an important bearing in disease. For instance, an occasional irregularity of the pulse during the course of pneumonia may be the first sign of a fatal termination. On the other hand, I know a family in which all the sons possess an irregularity of the pulse in the form of ventricular extra-systoles. They are all perfectly strong, middle-aged men, and their father, who had a similar pulse irregularity, lived to the age of 82. In such cases a just opinion can only be formed by a comprehensive consideration of all factors. Again, it sometimes happens that a pulse may appear quite regular to the palpating finger, but when the movements of the heart are analysed, it is found to possess a gross irregularity. For example, in conditions of heart-block the radial pulse may appear to be quite regular, as in an instance which I shall show you, but by a graphic method it can be shown that the auricles and ventricles are absolutely dissociated. The factors which govern the normal beat of the heart are—first, stimulus formation; secondly, excitability; thirdly, contractility; fourthly, conductivity; and fifthly, tonicity.

The bias of opinion at present very strongly favours the view that the heart initiates and conducts by its own muscle fibres the proper orderly contraction of auricles and ventricles. This is known as the myogenic theory. Even if it is ultimately proved that the nervous system plays a considerable part in the normal beat of the heart, we have obtained from the myogenic theory a very good working explanation of many irregularities of the pulse. This theory assumes the muscle fibre to contain some physico-chemical material, which gradually accumulates until it is present in sufficient quantity to stimulate the muscle fibre to contract. Cardiac muscle has the peculiar characteristic that during contraction the stimulus matter is used up, and immediately following the contraction the property of excitability is temporarily lost. In other words, no further contraction can take place until the stimulus matter has been regenerated, and until the property of excitability has been restored. This period of enforced rest is known as the refractory period of the heart. It will be apparent that the heart, unlike ordinary muscle fibre, cannot be continuously stimulated to a tetanic condition, or even made to contract immediately after a previous contraction.

I wish to emphasize very strongly the fourth property of the heart—namely, that of conductivity. Any particular cardiac muscle fibre during its contraction has the power of exciting a contraction of the contiguous fibres, so that by causing the contraction of a single cardiac fibre a wave of contraction is conducted along the neighbouring fibres.

Can this principle of fibre to fibre stimulation be applied to the human heart? You will remember that the auricles are separated from the ventricles by distinct rings of fibrous tissue—that is to say, there is no direct continuity of ordinary cardiac muscle fibre between auricle and ventricle. A wave of contraction, beginning in the ordinary auricular fibres, will be arrested at this fibrous ring, and would not be conducted to the ordinary ventricular fibres. To obviate this difficulty a specialized band of muscular fibres, however, exists, which extends across the fibrous ring from auricle to ventricle, and is capable of conducting stimuli from auricle to ventricle. This specialized band, which is composed of cardiac muscle fibres of an embryonic type, is known as the "bundle of His." By this band of specialized muscle tissue the stimulus is conducted in an orderly manner from the auricle to the ventricle.

Lastly, the fifth property which the heart muscle possesses is that of tonicity. In other words, the heart muscle fibres, like the muscle fibres of the body generally, are never completely relaxed, so that the heart wall always maintains a certain degree of rigidity.

In a normal heart these five properties of heart muscle fibres are interdependent. In pathological conditions, however, they may be affected independently of one another. In some diseases of the heart they all suffer. In some cases we find a depression of the property of conductivity, and in others an increase of excitability. Certain poisons seem to have a discriminative effect upon the properties of the heart muscle. For example, digitalis depresses conductivity and increases the tonicity of the heart. Other poisons, like alcohol and muscarin, diminish the tonicity of the heart. As it is the orderly exercise of these five properties which determines the normal rhythm of the heart, it is only by the analysis of these five properties of the heart separately and collectively that we

*A paper read before the Sunderland Division of the British Medical Association on November 22nd, 1910.

can really understand to what extent the heart is affected in diseased conditions. I believe that, with a deeper insight into the detailed working of each diseased heart, the time is not far distant when we will be able to point to and treat the erring function—whether of excitability, contractility, conductivity, or tonicity.

From the ordinary examination of the radial artery at the wrist we can obtain information regarding the action of the left ventricle, but by all the ordinary methods of examination no information can be obtained of the movement of the auricles. By investigation of the venous pulse in the neck important facts regarding the action of the auricles can, however, be demonstrated. Dr. James Mackenzie has invented an ink polygraph by which simultaneous records can be taken from the venous pulse in the neck and the radial artery at the wrist. By so doing we are able by measurement to obtain exact information of the movements of the chambers of the heart. By placing the tambour over the jugular bulb, which is situated between the two heads of the sterno-mastoid muscle, a record of the variations of pressure within the jugular vein is obtained. It is known that these variations in pressure are similar to the variations of pressure which take place in the auricles, allowing for the delay in time required for the transmission of the pulse from the auricle to the jugular bulb.

Fig. A shows the similarity between the auricular and jugular curves. There are certain rises and falls of

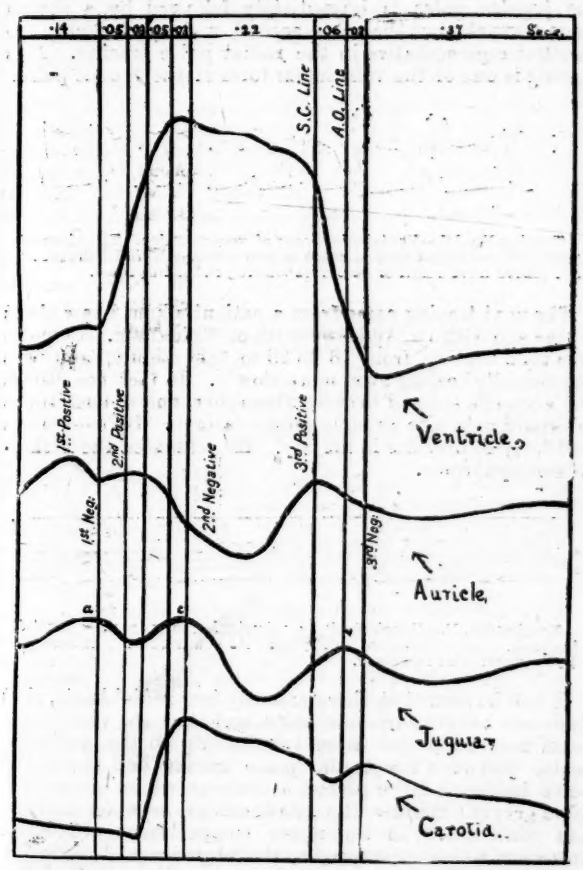
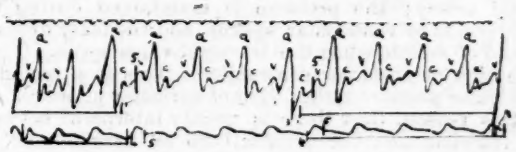


Fig. A.—Diagrammatic representation of the events of the cardiac cycle and of the carotid and jugular pulses in relation to standard movements. The scale of abscissae is 1 mm. to $\frac{1}{100}$ second. S.C. = Semilunar valve closure. A O. = Auriculo-ventricular valves open. (After Lewis, *Further Advances in Physiology.*)

pressure in both, and without detailing the proof I may state that these variations in pressure are due to similar events in the cardiac cycle. We must now compare the time relationships of these rises and falls in auricular and jugular pressure with the time relationships of ventricular events. In the two uppermost curves, one of auricular and the other of ventricular pressure placed one above the other, it will be noted that the first positive wave of the auricular curve occurs before the systole and upstroke of the ventricle, and that the second positive wave in the auricular curve is synchronous with the sudden rise of ventricular pressure. It will further be noted that during the contraction of the ventricle there is a depression and fall of pressure in the auricular curve broken towards its termination by a third positive wave in the auricular curve. It is generally recognized that the first positive wave in the auricular curve is due to the contraction of the auricle. The second positive wave is due to some factor synchronous with the ventricular contraction. The time of the third rise is variable, but the fall which occurs after its apex is very constant. This fall occurs as soon as the tricuspid valves open. In this way we are able to trace the events occurring in the auricle during a complete cardiac cycle. First the auricle filled with blood contracts, and causes a sudden rise of pressure. It then relaxes, causing a fall in pressure. This fall would continue, but it is interrupted by a rise of pressure which occurs at the moment of ventricular systole, and gives rise to the second positive wave. You see that the fall is continued after the second positive wave. During the systole of the ventricle the tricuspid valves are closed, and the blood gradually collecting in the auricle steadily raises the pressure. This gradual rise of pressure may contribute to the third positive wave. This rise continues until the tricuspid valves open, which event occasions a fall, because the blood then flows easily through the auricle into the ventricle. The blood continues to flow from the auricle into the ventricle until the pressures are the same. Then the auricle contracts, and we begin a new cardiac cycle.

Exactly similar events are shown in the curve from the jugular bulb, but are slightly later. During each cardiac cycle there is a rise (*a*) which is due to the contraction of the auricle; (*b*) a fall of pressure due to the relaxation of the auricle, interrupted by a second rise (*c*) synchronous with the pulse in the carotid artery; a second fall of pressure occurring in the early part of the ventricular systole, followed by a third rise of pressure towards the end of the systole, while the tricuspid valves are still closed. From these diagrammatic pressure curves it will be evident that the events in the jugular vein and carotid artery bear to each other time-relationships identical with those which exist between auricular and ventricular events. The variations in pressure in the jugular vein and carotid artery are merely later in time than the variations in the auricle and ventricle.

In this way a record of the venous pulse in the neck will afford direct evidence of the events taking place in the auricle and the ventricle. In tracing No. I, taken from the venous pulse in the neck by means of the ink polygraph, variations of pressure similar to those which I have described in the auricular and jugular curves will be seen.

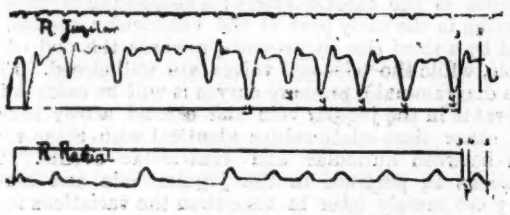


Tracing No. I.—Auricular form of venous pulse. *a* = Auricular contraction. *c* = "Carotid impulse." Vertical line = Ordinate. Upper curve = R. jugular. Lower curve = R. radial artery.

At the top of the tracing is the record of the time-marker indicating fifths of seconds. Immediately below this is the tracing from the jugular bulb, and at the bottom is a record of the radial artery. The records from the jugular vein and the radial artery have been obtained by the simultaneous working of the two pens of the polygraph. At the beginning and end of the tracing, after the machinery has been stopped, the rubber tubes are squeezed so that the pens make straight lines up and down the paper. These are the ordinates and represent simultaneous events, and are used as standards from which to make measurements. We employ the radial artery as the standard of time. I have marked a point (4) on the radial tracing which indicates the commencement of a radial upstroke. By measuring the distance between (4) and the radial ordinate and transcribing this measurement into the jugular tracing you will see that it falls immediately in front of a sudden upstroke which is due to the pulse of the carotid artery. Now we know that the carotid pulse occurs about one-tenth of a second before the radial pulse. We have learnt, then, where the ventricular systole begins

in the jugular tracing. We must now see where the ventricular systole ends. We proceed as follows: We know that as soon as the aortic valves shut there is a wave of pressure transmitted to the radial artery which gives rise to the *dicrotic notch*. Therefore the line which I have marked (5) just previous to the dicrotic notch indicates the period of time synchronous with the closure of the aortic valves—that is, the end of systole. The period, then, between the beginning of the radial upstroke (4) and this line (5) indicates the time during which the aortic valves are open—that is, the period occupied by the ventricular systole. We now transcribe this period into the jugular tracing, measuring from the beginning of the upstroke of the carotid (3) so that we can now divide the jugular tracing into two parts. All between the line (3) and the line (5) occurs during ventricular systole. The portion of the tracing between the line (5) and the commencement of the next (3) indicates the events happening during diastole. Let us take the two periods separately. During systole we have here represented a sharp upstroke (*c*) due to the carotid impulse, immediately followed by a second upstroke (*v*) which only attains its maximum at the end of systole, and of whose significance I have already told you. In the diastolic period a sharp upstroke (*a*) is followed by a corresponding downstroke, and these represent auricular contraction and relaxation respectively. It will be observed that in this tracing a wave due to the contraction of the auricle is always a very obvious feature. This variety of venous pulse is known as the auricular form.

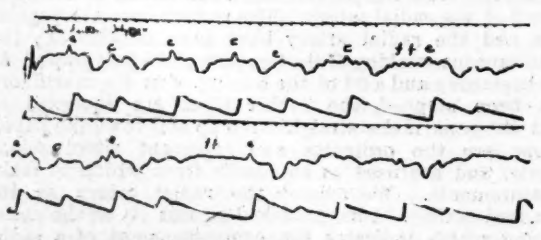
We may roughly classify tracings obtained from the jugular pulse into those which possess a single wave due to the contraction of the auricle and those in which it



Tracing No. II.—Ventricular form of venous pulse. The figure 3 marks the time of the carotid impulse ($\frac{1}{10}$ second before the radial upstroke 4).

is absent. The latter is known as the ventricular form of venous pulse.

As will be seen, there is in the jugular tracing a sudden upstroke immediately preceding the point of time of the carotid artery; the pressure is maintained during the whole period of ventricular systole, and suddenly drops at the end of systole when the tricuspid valve opens. There is no sign of auricular contraction. This is a record of ventricular pressure rather than of auricular pressure, and for this reason, that there is merely interposed between the ventricle and the jugular bulb an auricle which is dilated and inefficient. There is evidence—both clinical and *post mortem*—that in cases in which this form of venous pulse has been obtained the auricle is dilated, and that it never gives rise to a single forcible contraction. There are times when the auricle gives rise to numerous incomplete contractions, of which I show you an example (auricular fibrillation).



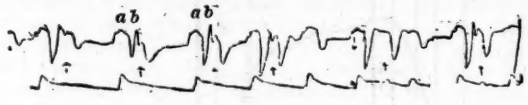
Tracing No. III.—Auricular fibrillation. The small waves due to auricular fibrillation are marked *f*; *c* marks the carotid impulse.

I believe also that there are conditions when the auricle lies as an inactive reservoir between the great veins and the ventricle. All tracings from the jugular bulb in the neck broadly follow one of these two forms of tracing. That is, there is either evidence of auricular contraction, the auricular form of venous pulse, or there is no sign of a definite auricular contraction—the ventricular form of venous pulse. With this knowledge of the types of pulse which can be obtained from the jugular bulb we may now proceed to consider some characteristic irregularities. I will show you examples of abnormally slow pulses, abnormally fast pulses, and some other irregularities, all of which I have met with in my own work.

Slow pulses may be due to one of the following causes: (1) A slow rate, in which both auricles and ventricles participate. (2) The slow rate may be due to the failure of the ventricular contraction to make any impression upon the radial artery, because the ventricle has contracted too soon and too incompletely to transmit a wave to the radial pulse. (3) There are some cases where the slowing is due to the influence of digitalis upon a heart in which the auricle is completely or partially paralysed—cases, that is, of the ventricular form of venous pulse. (4) The slow pulse is due to the fact that impulses from the auricle to the ventricle are blocked.

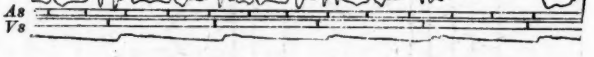
1. In the group of cases in which the slow rate is common to both auricles and ventricles are included abnormally slow pulses, which are present in normal persons, and occasionally also in conditions where the heart is labouring against a high peripheral resistance.

2. Tracing IV shows how a premature contraction of the ventricle fails to make any appreciable impression on the radial artery. It will be seen that the large wave (*a*) in the jugular pulse is immediately followed by a second large wave (*b*), but that this second wave (*b*) has only the smallest representative in the radial pulse tracing. This tracing is one of the ventricular form of the venous pulse.



Tracing No. IV.—Ventricular form of venous pulse. The rises of pressure (corresponding to heart beats) against which "crosses" are placed have small or no corresponding radial impulses.

The next tracing came from a patient whom I saw about a year ago with Dr. Andrew Smith of Whickham. His pulse was then beating from 18 to 25 to the minute, and was occasionally beating even more slowly. In fact, sometimes the ventricle seemed to cease altogether, and at such times he would pass into an epileptiform attack. He sometimes had forty to fifty fits in the day. He presented the Stokes-Adams syndrome.

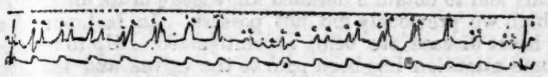


Tracing No. V.—Heart-block. *a* = Auricular impulse; *c* = carotid impulse. In interposed diagram *As* = auricular impulses, *Vs* = ventricular impulses.

It will be seen that there are only four radial beats, that there are twelve auricular beats, and that the ventricular beats bear no proper time relationship to the auricular beats. Between the jugular pulse tracing and the radial pulse tracing I have placed a diagram which shows in a more graphic manner the relationships between auricles and ventricles. In the upper compartment are black upstrokes which correspond to the beginnings of auricular contractions, and you will see from this diagram that the auricles are beating perfectly regularly at a rate of sixty to the minute. In the lower compartment are upstrokes corresponding to the beginnings of ventricular contractions (*c*). The ventricles, as you will see, never receive normal impulses from the auricles, and have assumed a rhythm of their own, which is at the rate of twenty-three to the minute. Dr. Smith told me that after the patient had been under treatment for some time his pulse was almost normal, and that he was able to work in his garden. At this time I obtained tracing No. VI.

It will be seen that the pulse-rate is very much quicker—about 60 to the minute. When I felt his pulse with my fingers and found it quite regular and beating at such a rapid rate, I concluded that the block between auricles and ventricles was removed. In fact, I surmised that he

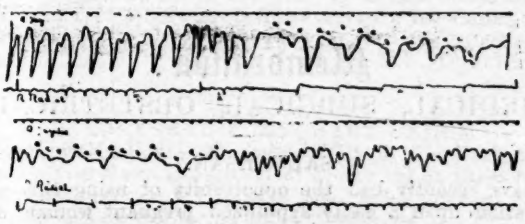
would have a normal jugular tracing, by which I mean that the ventricles would be contracting in response to stimuli from the auricles, but it will be seen that the auricles and ventricles are still dissociated. At the beginning of the tracing the contraction of the ventricle precedes that of the auricle; at the seventh beat the



Tracing No. VI.—Heart-block (same case). *a* = Auricular impulse; *c* = carotid impulse.

ventricular beat has caught up the auricular, and later again appears behind it. In a case such as this, examined at a period when the pulse-rate was regular and fast, it would be impossible to know that the patient possessed a very serious heart lesion without such a graphic record.

Fast pulses are met with most frequently (1) as the result of fever, (2) in cases of exophthalmic goitre, and (3) in cases of paroxysmal tachycardia. In Groups (1) and (2) the relationships between auricles and ventricles are perfectly normal, and both beat at the abnormally high rate. In paroxysmal tachycardia the condition of the heart changes, when the pulse-rate passes from the slow to the fast rate. I can indicate what these two changes are by briefly describing the case from which I obtained Tracing VII.



Tracing No. VII.—Paroxysmal tachycardia. In upper tracing the transition from a slow to a fast rate is shown. In lower tracing vice versa.

In this case the attack of quick heart-beat used only to last about ten minutes. During the attacks of tachycardia the heart could be demonstrated to have dilated—that is, the right margin of heart dullness extended 1 in. to the right of the sternum, having previously only reached the mid-sternum. The veins in the neck were engorged and pulsated with every beat of the heart. The patient became cyanosed and the breathing became hurried. The pulse was small and quick. After the attack had lasted for ten or fifteen minutes, the pulse would almost suddenly become slow, the veins of the neck would subside, and the area of heart dullness would diminish.

In the left-hand part of the upper tracing the jugular tracing is of the ventricular venous type and the pulse-rate is rapid and small. This period corresponds to the condition of acute dilatation with turgid pulsating veins. As we follow the tracing from left to right we see that the pulse slows and that the jugular tracing takes the auricular form. In the lower part of the tracing I have caught the transmission from a slow rate to the fast rate of an attack of tachycardia. The patient from whom this tracing was obtained had mitral incompetence as the result of rheumatic fever. He has a brother and a sister, both of whom have had rheumatic fever; they have rheumatic heart lesions, and are subject to similar attacks of tachycardia.

The last group of irregularities to which I wish to draw your attention is very common. With the fingers upon the radial artery it is noticed that every now and then there seems to be a long pause, followed probably by an excessively big impulse in the radial artery. This would be called an intermittent pulse. With the stethoscope on the heart and the finger on the radial artery it is found that two normal sounds of the heart are quickly followed by one or two short sharp sounds, and the first of the short sharp sounds corresponds to a very faint impulse, or no impulse at all, in the radial artery. Fig. B is a graphic representation of this.

In these conditions the excitability of the ventricle is so increased that a contraction takes place before the end of its proper resting period. If this extra-systole occurs very early in the diastole of the ventricle the pressure in the aorta will be so great that this additional weak contraction will be unable to open the aortic valves, and the extra-systole will have no representative in the radial artery. The later in diastole that the extra-systole occurs the

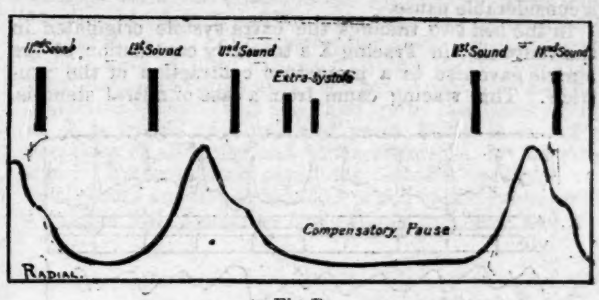
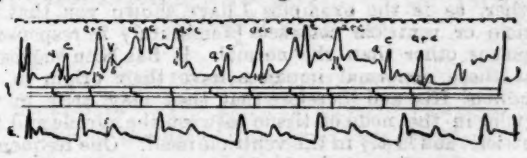


Fig. B.

stronger it will be, and the greater will be the fall in aortic pressure. Under these conditions the extra-systole will have a representative in the radial artery. Tracing VIII is an example of the ventricular extra-systole. In

Tracing No. VIII.—Ventricular extra-systole. Extra-systole at *x*. In the jugular tracing a carotid impulse has preceded an auricular impulse.

the lower tracing of the radial artery there is a small beat in the radial artery following the sixth upstroke of the radial tracing, measuring from the right hand end. If we measure from the right ordinate to the beginning of the upstroke of the small beat and transcribe this measurement into the jugular tracing it will be found to correspond to a carotid impulse. The interposed diagram shows what has occurred. The early appearance of the extra-systole in the lower compartment of the diagram will be noticed. In the upper part of the diagram it is evident that the auricles maintain their normal rhythm throughout. The auricular contraction which follows the extra-systole has no effect upon the ventricle because the ventricle is in the resting stage following the extra-systole. After the extra-systole there is a long pause before the next heart contraction. This is known as the compensatory pause. The interval occupied by the contraction of the extra-systole and the previous full beat is greater than the interval occupied by any two normal beats. Tracing IX shows an extra-systole

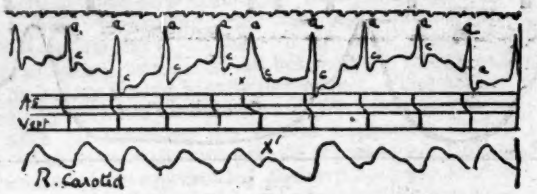


Tracing No IX.—Ventricular extra-systoles. Ventricular extra-systoles occur alternately with normal beats.

which occurred later in the diastolic period. The extra-systole is still, however, of ventricular origin. Following the tracing from left to right, it will be seen that the first beat is represented in the jugular tracing by an auricular contraction followed by a normal ventricular contraction, but at the second beat it will be observed that there is one single very large rise in the jugular tracing. If we measure from (*s*) to the ordinate on the left of the radial tracing and make the same measurement from the ordinate in the jugular tracing it is plain that the ventricle contracted immediately after the beginning of the contraction of the auricle. This almost simultaneous contraction of the auricle and ventricle gives rise to a very large (*a* and *c*) wave in the jugular tracing because the auricle would find closed auriculo-ventricular valves during the greater part of its contraction. The condition of affairs is, perhaps, more easily seen from the interposed diagram. There it will be seen that the normal auriculo-carotid intervals of one-fifth of a second alternate with the almost

simultaneous contraction of auricles and ventricles. This type of pulse is one variety of the so-called bigeminal pulse. Though the abnormal extra-systoles reach the pulse they are considerably smaller than normal, and are followed by a considerable pause.

In the last two tracings the extra-systole originated in the ventricle; in Tracing X a too early contraction of the auricle gave rise to a premature contraction of the ventricle. This tracing came from a case of mitral stenosis.



Tracing No. X.—Auricular extra-systole. The carotid extra-systole x^1, which corresponds in the jugular tracing with the mark *c*, is preceded by a large *a* wave, due to an auricular extra-systole.

At x^1 there is a premature and smaller beat in the carotid artery. This might be due to the fact that either the ventricle itself has generated a premature impulse or that the ventricle has the stimulus to contract conducted to it from a premature auricular beat. We find that the distance from the ordinate of the carotid to x^1 falls exactly at the beginning of the small *c*. This gives us the time of ventricular systole. Just previous to that there is a very big wave which can only be due to the contraction of the auricle. The jugular pulse shows that the *a* waves rise with perfect regularity, except at this particular spot, where the contraction of the auricle has occurred too soon. The sequence of events can be more easily understood from the interposed diagram. I have indicated the extra-auricular systole at *x*. This is followed at a considerable interval by the small contraction of the carotid at *c*. The interval of time occupied by the passage of the stimulus from the auricle to the ventricle is in the case of the extra-systole considerably longer than normal, owing to the fact that the too early auricular systole finds the conducting fibres of the auriculo-ventricular bundle in a resting or refractory condition, and the stimulus conduction is delayed. Further, the interval of time occupied by the extra-systole and the previous normal contraction is less than the interval of time occupied by two normal contractions, in contradistinction to the long compensatory pause which I pointed out in the case of a ventricular extra-systole.

Whenever an extra-systole occurs, it means that the muscle is in an unduly excitable condition. It means, further, as in the examples I have shown you, that the auricle or ventricle contracts prematurely in response to impulses other than the normal. It has been suggested that these abnormal impulses have their origin in the bundle of His, and therefore that they may arise in the auricle, in the node of tissue between the auricle and the ventricle, and lastly in the ventricle itself. One frequently meets with extra-systoles in elderly people, and it has been suggested that in these cases the heart muscle is made more excitable from lack of proper blood supply, due to thickening of the coronary arteries. In old people extra-systoles, apart from signs of heart failure, have no particular significance. They have no sinister meaning unless they are discovered at a time when some particular call is being made upon the heart. If a patient with extra-systoles is attacked with a disease which causes fever and quickening of the heart-rate it is a favourable sign if, with the quickening of the heart, the extra-systoles disappear. I presume that in such a case the quickened heart-beat exhausts the irritability of the cardiac muscle, or at any rate that part of the muscle which gives rise to the extra-systole. The extra-systole occurs sometimes in dyspeptic and neurotic people, and is simply an evidence of the general lack of nervous control. Further, one meets with extra-systoles in young people in whom there is no rheumatic history and no cardiac sclerosis. I would sum up the significance of extra-systoles by saying that their presence has no serious import except when they occur in such diseases as pneumonia and rheumatic fever. In these conditions the heart muscle is involved in the disease process. In other cases the most serious result lies in the knowledge of the patient that he possesses an irregular pulse. He keeps feeling his pulse, and the irregularity fills him with unnecessary alarm.

I have endeavoured to show how by a graphic method we are able to unravel pathological conditions of the heart and to obtain a detailed knowledge of its mechanism which we previously did not possess. In fact, our ideas of heart disease are being revolutionized. Up to now too much attention has been paid to the valves and too little to the nervous and muscular components of the heart. As I said earlier, I believe that this recent knowledge of the heart's action will place our treatment of heart disease on a more exact basis. We must beware lest we are carried too far into the intricacies of a complicated mechanism like that of the heart, and place too much importance upon it; for, after all, the main question in any heart lesion amounts to this, What is the heart capable of doing? It is, however, always better to possess exact information rather than to work in the dark, and I have no doubt that with our more exact knowledge a more rational therapeusis will arise.

I take this opportunity of expressing my great indebtedness to Dr. Mackenzie for his help and encouragement, and to Dr. William Ritchie and Dr. John Cowan for their assistance in early difficulties. I thank also my colleagues at the Royal Victoria Infirmary for so readily placing their material at my disposal.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

SALVARSAN.

I HAVE recently had the opportunity of using this preparation upon a badly syphilized pregnant woman, and the notes of the case may be of interest.

A woman aged 26 was admitted to the union infirmary on February 27th, 1911, seven and a half months pregnant. The mouth and throat were extensively ulcerated, the voice husky, there were gummata on the chin and cheeks, a typical rash all over the body, numerous condylomata on the labiae and around the anus, and a foul vaginal discharge. There was severe dyspepsia and continual vomiting. She was placed on liquid diet, put to bed, and treated with mercury perchloride internally and black wash to the condylomata. She improved generally, vomiting ceased, and all the local conditions were modified. On March 21st an intramuscular injection of salvarsan was given. Beyond a slight soreness in the injection area no discomfort was felt. On March 23rd the patient said she felt much better. On March 24th the vaginal discharge had quite ceased, and the ulcers in the mouth and pharynx were looking much healthier, as also were the condylomata. On March 30th the ulcers were quite healed, the condylomata nearly gone, and all soreness had ceased in the vagina and vulvae, the patient stating that she felt quite well. On April 7th she was delivered of a male child of fully average weight and in good condition. The skin on its face, hands, and soles of feet had a puckered, dry appearance; otherwise there was none of the usual conditions found in the newly-born syphilized child. From its birth there was desquamation, especially on the hands and feet, until the fifth day. On the seventh day the child's appearance was that of a perfectly normal and healthy infant, and there had been no sign of any tendency to ophthalmia. The placenta was dark, soft, and "rotten looking."

Although the mother showed the excellent effect of salvarsan, the interest of the case centres in the condition of the child, which but for the new treatment would no doubt have been born with the usual syphilitic lesions.

On the same day a dose of salvarsan was given to another badly syphilized woman. She had been under mercurial treatment at intervals for several years, and had got steadily worse. On admission she was very emaciated. The soft palate was in a foul sloughing condition. She could barely swallow liquids and the voice was practically gone. Three days after the injection she could swallow. On the fourth day she could speak. Ten days after the pharynx and soft palate were healed, and on the twenty-fourth after the injection she appeared and felt quite well and had quite lost all appearance of emaciation.

Personally, I am disposed to think that the intramuscular method is preferable to the intravenous, at any rate in general practice.

Bishop Auckland. MARK WARDLE.

CONGENITAL ABSENCE OF ONE KIDNEY.

HAVING noticed in the issue for January 28th the report by Dr. J. Maughan of a case of congenital absence of one kidney, I beg leave to record a similar abnormality.

In July, 1907, I made a *post-mortem* examination of the body of a male Mozambique Kaffir, aged about 30 years, who had died of pneumonia in the compound hospital of the South Geldenhuis Deep Mine at Germiston, Transvaal. The right kidney lay unusually far over to the left, the upper end coming quite across to the mid line, and the hilum looking almost downward. On removal it was found to be very large. The upper part was enlarged so that about three-quarters of the bulk of the organ lay above the ureter. The posterior lip of the hilum was very prominent. The pelvis and ureter were both large. But for cloudy swelling the organ was otherwise healthy.

The left kidney was absent, and also the left suprarenal, and there were no left renal vessels. The lower end of the left ureter was present and had a lumen in part of its length. Just above the point where it crossed the iliac vessels it became a fibrous cord, and this tapered off till two or three inches higher up it lost its identity, becoming merged in the areolar tissue over quadratus and psoas.

The subject of congenital absence of a kidney is mentioned by Greenfield (*Pathology Lectures*, 1904), who indicates that the condition is not of surpassing rarity. It would be unfortunate if a person thus defective were unwittingly subjected to nephrectomy. For this, then, as well as other reasons, one should determine the renal activity of both sides of the body by means of the Luys's segregator, or otherwise, before surgically interfering with any kidney.

Eketahuna, N.Z. J. P. S. JAMIESON, M.B., Ch.B.Edin.

PAROXYSMAL PULMONARY OEDEMA.

I READ with interest the article (231) in the EPITOME of the BRITISH MEDICAL JOURNAL of April 22nd on paroxysmal pulmonary oedema. I have a case under my care which corresponds closely to the description given.

A married lady aged 46 has a history of frequent attacks of "asthma" (?) for the last two years; during these attacks she was unconscious, and had a great amount of frothy blood-stained fluid coming from the nose and mouth. I saw her first in a typical attack about two months ago. She was quite unconscious, had a high degree of cyanosis, much bloodstained frothy fluid coming from the nose and mouth. I promptly gave her ¼ grain of morphine hypodermically, and applied a hot linseed poultice to the chest. She recovered consciousness in about half an hour. Next morning the temperature was 100·7° F., respirations 35, pulse 100. The cardiac sounds were normal except that the aortic second sound was accentuated. The urine was pale, specific gravity 1010, slightly albuminous. The morning after she got up and was apparently quite well. The urine was normal, specific gravity 1020, and contained no albumen.

Within the next fortnight she had three attacks of much the same severity. During the next month she had four attacks of dyspnoea, but with no sign of oedema. Lately she has been taking a mixture containing potassium iodide and tincture of digitalis, with a dose of sal volatile when an attack threatens.

At first I thought she was suffering from cardiac or renal asthma, but that was quickly disproved. Later I attributed the oedema to the high blood pressure she occasionally suffered from. I intend to try a small hypodermic injection of adrenalin if she has another severe attack.

Liverpool. OLIVER CARLYLE, F.R.C.S Edin.

MEDICAL AND SURGICAL APPLIANCES.

Fine Pencils of CO_2 Snow for General Practice.

DR. JOHN ASTON SWINDALE (Whitchurch) writes: The various forms of apparatus for CO_2 snow look cumbersome and complicated, and are somewhat expensive. It is necessary that the outfit be as portable as possible, and the initial outlay is a consideration, as also is the time entailed in packing up and sending empty gasekettes or cylinders for refills. The Prana apparatus answers our purpose very well (Aërators, Limited, Upper Edmonton, N.). It costs £2 10s. and packs into a box 11 in. by 3½ in. by 5 in.; the gasekette costs 6s. and is also most portable and light, length 16 in. by about 1½ in. Both are easily carried in the ordinary bag. It is a good plan to have three gasekettes. Two can go up for refills together at 6d. each and the train fare; the other remains behind for work. Full instructions as to fitting the parts together are supplied with each outfit. In fair-sized port-wine stains, and most naevi, the pencil obtained with this apparatus is of efficient size, and quite satisfactory. But as it is friable and cuts and pares badly, it is not so useful for small moles and other blemishes, or for small naevi. To treat such cases one feels the need of a very small-bored and flat-ended hard pencil of the snow, and so I had the little apparatus made shown in Figs. 1 and 2.

Fig. 1.

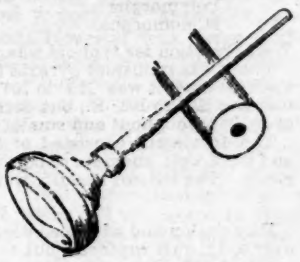


Fig. 2.

Fig. 1 represents a section of solid steel bar, about 3 in. in height and 1 in. in diameter. It is carefully funnelled at the top end to a depth of nearly 1 in., the other end being quite flat, so that it stands easily on any flat surface. A hole is bored completely through to the desired size—namely about that of the end of a fine penholder. In Fig. 2 is shown the plunger, a steel rod, accurately fitting the hole, and mounted on a comfortable handle, with good grip. After the snow has been prepared, enough of it is placed in the cuplike funnel to fill it completely. It is then cleared from the sides of the funnel with a spatula and forced down bit by bit with the plunger. The resisting power at the other end being the base cap of the Prana apparatus, a piece of stout metal or glass, or a firm table. If a pencil of somewhat larger or smaller bore be required, all that is necessary is to make use of one or two more sections of the bar, the same plunger handle could be made to act by screwing the new rods into it.

Reports
ON
MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

WESTMINSTER HOSPITAL.

ULCERATIVE COLITIS AND THE BACILLUS PYOCYANEUS.

(Under the care of Dr. DE HAVILLAND HALL.)

[Reported by ALFRED BERNSTEIN, M.B.Lond.]

THE following case is recorded on account of the obscurity of the etiology of the disease:

Margaret B., aged 32, admitted to Westminster Hospital on April 6th, 1910.

Complaint.—Pains in the abdomen and blood in the stool.

Family History.—Father died of consumption; nothing else notable.

Previous History.—Always good health, except slight dyspepsia. Bowels regular. The patient had never been abroad.

Present Illness.—At the beginning of March, 1910, the patient first noticed blood in the stool. She then had diarrhoea for two weeks with several attacks of severe pain in the abdomen daily, which made her lie down. She had nausea, but no vomiting and no headache, and went about her work. Since about March 23rd she had only taken beef-tea for food.

Condition on Admission.—Moderately nourished; teeth fair; tongue coated. Abdomen soft; some tenderness and pain in left iliac region. Per rectum *nil*. Chest *nil*.

Course.—On April 8th the stools contained much blood and pus. In the first twenty-four hours there were twelve motions, chiefly blood. On April 14th distinct pieces of mucosa were mixed with the blood and pus. The stools were much less frequent and smaller, but the patient was weaker and paler. On April 16th the blood was in clots and darker. On April 19th it

was noted that she was steadily getting weaker. In the night she had passed about half a pint of blood and clot in bed. She could not retain starch and opium enema, but took food well, though in a typhoid state. On April 25th the stools were slighter, thinner, and greenish-black. *B. coli* and *B. pyocyaneus* were cultivated from the faeces. On April 29th she was slightly delirious; vaccine of *B. coli* and *B. pyocyaneus*, 5 millions, was given. On May 3rd she was weaker, and there were large butterfly-shaped patches of erythema on the nose and cheeks. On May 7th there was only slight blood in the stool. In the evening she had much pain over the abdomen, which was distended and tender. She was delirious. The temperature suddenly dropped, and then rose again, and in two or three hours she died. It was thought that perforation may have occurred, but even so laparotomy was out of the question.

Blood count, April 19th:

Red blood corpuscles	3,550,000
White blood corpuscles	14,400
Colour index...	0.78
Polymorphs...	86 per cent.
Monomorphs	14 ,,

Widal reaction for typhoid was negative.

There was remittent pyrexia throughout the illness. During the first week it was 100° to 104° F.; then afterwards generally between 100° to 102° F., but occasionally 99° F. The pulse was over 120 throughout and small.

The treatment consisted of light diet; bismuth salicylates and tinct. opii, enemata of boric acid, and later stimulants were given. The patient steadily went downhill.

Post Mortem.

Emaciation and advanced decomposition, small haemorrhages over body, guts ruptured, but as there was no peritonitis, almost certainly due to *post-mortem* decomposition, which was very advanced. Numerous thin adhesions of the coils to anterior abdominal wall and to one another. The transverse colon was adherent to anterior wall and to stomach. The chief changes were in the large intestine and colon. These were congested and oedematous, and there was extensive ulceration, causing the mucosa to be ragged.

The ulcers were so close that no area bigger than a sixpence was free. The ulcers were oval and the edges were overhanging. In many places no mucous membrane remained, exposing the muscular coat, and in many places even the peritoneum. The parts between the ulcerated areas were thickened, and the mucosa hung loose into the lumen of the bowel. The largest ulcer was about 1 in. by ½ in., formed by the coalescence of smaller ulcers.

The small intestine showed numerous small ulcers about ¼ in. diameter and confined to the lymphoid follicles, and no deeper than the mucosa. There was no ulceration higher than 6 in. from the ileo-caecal valve. Mesenteric glands not enlarged. Liver and spleen decomposed. Other organs *nil*.

This case exhibits all the classical signs of ulcerative colitis—typhoid state, prostration, nausea, diarrhoea with passage of blood, pus and sloughs, loss of flesh, and abdominal pain and tenderness. But the chief interest of the case lies in the fact that the *B. pyocyaneus* was isolated from the faeces.

Hewlett[1] mentions the fact that this organism has been isolated in the disease, but out of 308 cases reported from the chief London hospitals in twenty-five years to provide a basis for the discussion opened by Sir William Allchin[4] at the Royal Society of Medicine in 1909 there was mention of the *B. pyocyaneus* being found in the stools in one case only, and then in association with a streptococcus and a spore-bearing bacillus. Unfortunately the great majority of these cases were not investigated from a bacteriological standpoint.

Williams and Cameron[2] reported several cases of infection by the *B. pyocyaneus*, but generally in association with other organisms, but they consider that two of these cases were a pure infection; these cases were chiefly infants with green diarrhoea, fever, and sometimes haemorrhages in the skin or intestine. The mucosa of the intestine was never ulcerated, but was thickened in all cases. Often boils and abscesses developed in the skin. In some the organism was isolated from kidney, spleen, and liver, and even from the abscesses. And in one case, although it was not found in these organs, cultures were made from the contents of the caecum. In nearly all these cases the stools were not examined for bacteria. The organism has also been found in the intestinal tract of infants by Booker.[3]

In the case here recorded cultures from the stools showed *B. coli* and *B. pyocyaneus*, but unfortunately no attempt was made to cultivate the bacillus from the organs.

REFERENCES.

[1] Hewlett, *Textbook of Bacteriology*, 1910. [2] Williams and Cameron, *Journ. Path. and Bact.*, vol. iii, 1896. [3] Booker, *Transactions International Medical Congress*, vol. iii. [4] *Proceedings Royal Society of Medicine*, Medical Section, January 26th, 1909.

Reports of Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF DISEASES OF CHILDREN.

Friday, May 26th, 1911.

Dr. E. CAUTLEY, President, in the Chair.

Treatment and Prevention of Measles.

IN a paper read on March 24th Dr. Milne advocated the treatment of measles by inunction of the body with eucalyptus oil and the local application of 1 in 10 carbolic oil to the throat, by which means he maintained that infection could be prevented. In opening a discussion on the paper, Dr. J. D. ROLLESTON said that as the contagion was chiefly spread by discharges from the nose and eyes, especially during the pre-eruptive period, it was difficult to understand what useful purpose could be served by mere inunction of the skin with eucalyptus oil and the application of carbolic oil, itself an antiseptic of very doubtful value, to the throat, even if the treatment could be carried out at home. Inunction of the skin, in Dr. Rolleston's opinion, was of very doubtful value in scarlet fever, and of still less value in measles. Dr. Milne further claimed that his treatment rendered disinfection unnecessary, but in ordinary circumstances the process was not required unless the patient died from broncho-pneumonia or some secondary infection. Dr. BEZLY THORNE upheld the use of eucalyptus oil, having found it very beneficial in his early days. It was, however, open to the objections that patients disliked it, and that it irritated the skin. He therefore substituted an aqueous emulsion of carbolic acid, which he used for scarlet fever, measles, and varicella, and gave eucalyptus oil internally, with the result that his cases ran a benign course and all danger of infection was prevented. Dr. BIERNACKI said that during a severe epidemic of measles he had tried Dr. Milne's method and found it a total failure. There had never been so many cross-cases at the hospital as when the treatment was being carried out. Nevertheless the fact that a treatment had been tried and failed was not a sufficient reason for refusing to try it, and he recommended that someone should try the method quite independently, working under the same conditions as had Dr. Milne. Dr. T. R. WHIPHAM dealt with the question of the conveyance of measles infection by a third person, such as a nurse, and asked whether a nurse doing duty in a ward could be so saturated with eucalyptus oil that she would not convey measles to another patient. At what period should the treatment be carried out? Was one to assume that every case with indefinite symptoms was a potential case of the disease, or should one wait until the characteristic signs were evident? In the latter case what was to prevent the spread of infection during the incubation period? If every indefinite case was to be treated early one would be continually living in an atmosphere of eucalyptus. No suggestion as to the *rationale* of Dr. Milne's method had yet been advanced, nor as to how the internal administration of eucalyptus, as recommended by Dr. Bezly Thorne, acted. Dr. MILNE, in replying, said he had issued a free invitation to the members of the section and all interested to come and see his cases. After the use of the eucalyptus oil there was a decided odour of it in the urine. All the complications arose through secondary infections, but when the throat was treated early secondary infections never occurred. He was able to advance hundreds of testimonials in support of his position, and he would be glad to know how he could have done more than he had to have his system properly tested. Dr. BEZLY THORNE, answering Dr. Whipham, said that he assumed the eucalyptus oil acted by destroying the bacilli, particularly when it was taken internally, but he could no more explain how the eucalyptus oil acted in these cases than how quinine acted in malaria.

Exhibits.

The following were among the exhibits: Dr. E. CAUTLEY: (1) *Pyloric hypertrophy and spasm* in a male infant, aged 10 weeks, who had weighed 6 lb. at birth. Fed on Allenbury No. 1 food, he gained 1 lb. in the first week, and then began to vomit. The vomiting became more severe and projectile in character, and the bowels

were constipated. Feeding on whey, cream, and lactose had checked the vomiting and brought about an increase in weight, and the stools were normal. There was marked peristalsis of the stomach extending to the duodenum, and the pylorus was palpable, but not much enlarged. The stomach was not dilated, and it was thought justifiable to wait longer before advocating operation. (2) *Cerebral sclerosis and idiocy* in a girl, aged 2 years and 4 months, with no history or evidence of syphilis. The child was stated to have been normal until 9 months of age, when she developed fits of opisthotonos and screaming. She was small and wasted, and had never been able to sit up or talk. There was head retraction and opisthotonos with general rigidity and spasmodic movements of the limbs. The knee-jerks were exaggerated and Kernig's sign was present. The child was blind, but the eyes showed no abnormal features. The diagnosis lay between a sclerosis of post-natal origin, perhaps secondary to encephalitis, and cerebral palsy of the type known as cerebral spastic diplegia. Mr. P. L. MUMMERY: A case of severe *Tuberculous peritonitis* in a girl. When first seen, the child was emaciated and anæmic, and the abdomen was distended with fluid. General treatment causing no improvement, laparotomy was performed, when the peritoneum was found to be covered with tubercle. The child had since become quite well, and there was now no evidence of tuberculous peritonitis. Mr. S. STEPHENSON: *Night-blindness with peculiar conjunctival changes* in a boy. The subjects of this condition usually suffered from insufficiency of food, and the amount of haemoglobin in the blood was always below normal. The relation of the condition to snow-blindness and kerato-malacia was discussed.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF OBSTETRICS.

Friday, May 12th, 1911.

Dr. H. JELLETT, President, in the Chair.

Implantation of the Ureter.

THE PRESIDENT exhibited a specimen from a case in which he operated by Wertheim's method for malignant disease of the cervix. In the course of the operation, in cutting through a piece of cancer that lay close to the bladder, he found he had cut through the ureter. On examining it he found the ureter apparently impervious, and entirely occupied by cancerous tissue. Later in the operation he cut off the lower end of the ureter where it was still blocked, until he got to a piece of healthy ureter. He then adopted an expedient mentioned by Professor Alfred Smith at a meeting of the Academy, of drawing the bladder up to the ovarian pelvic ligament and cutting a small hole in the fundus of the bladder and carrying the ureter into the bladder. The cancer was extremely extensive, and in separating the bladder wall from the anterior wall of the cervix it was found that the bladder was involved. He sutured it up, and closed it completely, and it remained closed for nearly a fortnight. Then it broke down owing to the extension of cancer. The method of suturing was one which was available in cases in which the ureter was left somewhat short. Professor ALFRED SMITH said the demonstration of the success of the implantation of the ureter was to him very gratifying. He noticed that when implanting the ureter into the bladder sutures were used. His idea was that when the bladder was anchored so that it could not retract, if they made an opening sufficient to allow the ureter to drop into the cavity of the bladder, all that was necessary was merely to close on each side the angles of the bladder wall. The rapidity with which the operation could be performed was noticeable. It was interesting to him that there was no evidence of hydronephrosis. Where they had a leakage through a ureter they would have the kidney secreting, and hydronephrosis coming on. If they cut the ureter and ligatured at once, the tension in the kidney reached a certain standard, and the kidney ceased to functionate.

Rotunda Reports, 1909–10.

Dr. E. HASTINGS TWEEDY read the Rotunda Hospital Reports for 1909–10. The PRESIDENT said that in his opening paragraph Dr. Tweedy had referred to the possibility of improvement in the results as an outcome of the opening of the new labour wards. The results up to the present were as good as they could be, but he confessed that it was an astonishment to him how they were so. They were passing through the wards 1,000 per year more patients than when these wards were built. The conditions of hospital practice limited them in the use of the teaching capacity of the hospital. The number of vaginal examinations had to be limited considerably in order to keep morbidity to the lowest bounds. It was a question if they were entitled to try to bring down the morbidity in the hospital if the result was to raise the mortality outside. If students were cramped in the number of examinations, that might be an excellent thing for the morbidity of the hospital, but it would certainly move in the direction of increasing the mortality of students' practice when they became qualified practitioners. Dr. TWEEDY, in reply, said that when he took up his duty as master, he felt he inherited a very old institution, and he said to himself the Rotunda Hospital was doomed the day that architectural perfection became the all-important item in maternity practice. They could not compete in money or structure with some of the great places that were supported by Government. Men were taught in the Rotunda to go into general practice. Surely the worst way to teach them was to impress them with the importance of bricks and mortar. Their nurses had too short a training for private practice. They left the Rotunda at six months, and were fairly good, but at the end of six years a great number of them were hopeless. The argument of the Master that he did not think they were entitled to lower the morbidity of the patients at the expense of the students was one that could be used against all humanitarians. With regard to vaginal examinations, these were not discouraged at all. He thought the examinations were made with the utmost safety if they used sterilized finger stalls.

ULSTER MEDICAL SOCIETY.

AT a pathological meeting on May 10th, Sir PETER O'CONNELL, President, in the chair, Professor SYMMERS read short notes on the value of antiformin in the search for tubercle bacilli in thick sputum, etc. Dr. DICKSON read a paper on experiments made by Dr. Wilson and himself showing the *Viability of typhoid bacilli* in water under natural conditions in a tank in the ground; the bacilli were recovered up to three weeks and two days by means of Dr. Wilson's apparatus. Professor Symmers said he doubted the exact analogy of the conditions described with those of a large reservoir with various currents. Captain SEWELL described his investigation of the water supply of a camp. Dr. WILSON described the gravimetric method of *Standardization of vaccines*. Drs. SYMMERS and HOUSTON regarded it as serviceable when vaccine in large quantity was required, as in typhoid inoculation of a regiment, but not for the ordinary 15 c.cm. bottle. Drs. ST. GEORGE and WILSON read notes of a case showing the infective nature of rheumatoid arthritis; the streptococci were obtained from the urine. Dr. DICKSON read notes of a case of enteric fever. On the fifty-third day the patient gave evidence of becoming a carrier; three inoculations were given, and cleared the urine. He suggested the possibility of inoculation of all cases to anticipate the infectivity of urine or gall bladder.

SCOTTISH OTOLOGICAL AND LARYNGOLOGICAL SOCIETY.

AT a meeting on May 20th, Dr. THOMAS BARR in the chair, the following were among the exhibits:—Dr. THOMAS BARR: A patient who, twenty-four years ago, came under his care suffering from *Otitic temporo-sphenoidal abscess*. Sir William Macewen operated. It was fully reported in the *Lancet*, March 20th, 1887, and was of historic interest as being one of the first of its kind operated on, Barker's and Caird's cases preceding it by only two or three months. Dr. WALKER DOWNIE: (1) A man from whom he had removed a large subglottic papilloma by *Thyrotomy*. This method was adopted in preference to the direct because of the foul appearance of the growth and because of loss of movement of the cord. The larynx was immediately closed. At the present time the cord moved well, but was still congested, and, in spite of the pathologist's report, "simple

warty papilloma," Dr. LOGAN TURNER voiced the opinion of other members in considering it a case which should be carefully watched for signs of malignancy. (2) A case of *Bilateral abductor paralysis* of the cords in which it was found necessary to perform tracheotomy to prevent suffocation. A most careful examination failed to disclose the cause of the paralysis. (3) A patient nine years after the injection of molten paraffin to remedy deformity of the nose. The paraffin, he said, remained inert, showed no tendency to migrate nor to become absorbed, and the improvement effected was permanent. Dr. J. STODDART BARR: A patient on whom operation for cerebellar abscess had been performed, contrasting with this case one which had ended fatally. Both were the result of chronic middle-ear suppuration. In the fatal case the abscess was associated with infective panlabyrinthitis and with septic thrombosis of the lateral sinus. In the other case there was no labyrinthine involvement. Dr. JAMES ADAM: A patient who had suffered from chronic oedema of the face associated with maxillary antral disease and extensive dental caries. Attention to these conditions combined with vaccine treatment resulted in great improvement. Dr. A. BROWN KELLY: (1) A woman, aged 21, suffering from *Syringobulbia* with implication of the nose, pharynx, and larynx; (2) a boy, aged 13, suffering from *Myasthenia gravis*, with impaired speech. Dr. TURNER remarked that it was probably one of the youngest cases of the kind reported. Dr. KERR LOVE: A girl, aged 8, on whom he had operated for *Lateral sinus thrombosis* secondary to chronic middle-ear suppuration. The sinus was occupied by septic clot from the jugular bulb almost to the torcular. The internal jugular vein was tied and the sinus evacuated, and the child made a steady though slow recovery. Dr. GALBRAITH CONNAL: A patient from whose right external auditory meatus he had removed a large *Exostosis*, which completely blocked the channel. It was then seen that the patient had a chronic middle-ear suppuration, of which he had been unaware, the tympanum being filled with foul-smelling, cheesy material. Later the radical mastoid procedure was carried out. With reference to the causation of these growths, the speaker remarked that a history of frequent and inordinate bathing could usually be elicited. (The patient shown lived by the sea, and bathed as many as six times a day during the summer months.) Dr. FULLERTON: A girl on whom he had performed *Killian's operation* for fronal sinus disease. It appeared that the intersinus septum was destroyed, but no opening could be found leading from what seemed to be the left sinus into the nose. Probably the true state of matters was that the right sinus encroached to an unusual extent on the left, which was so small as to be almost non-existent. Dr. W. S. SYME: A woman with *Anaesthesia of the palate, pharynx, and larynx*, and paresis of the palate. When first seen four months ago, the anaesthesia of the palate, pharynx, and root of tongue was fairly well marked. This had improved, but the larynx remained decidedly anaesthetic. Vertigo, with tendency to fall to the left, had lately developed, and her sight had deteriorated. There was optic neuritis. No history of syphilis could be elicited. The knee-jerks were much exaggerated. Cold water in the left ear quickly produced a very marked coarse nystagmus towards the right, with severe vertigo, and tendency to fall to the left. With the right ear the reaction was much less marked, and practically no sense of vertigo was caused. A provisional diagnosis of cerebellar tumour had been made.

THE Ozonair Company, we are informed, has made a contract with the Central London Railways to place and work one of its plants at each of the stations on the combined lines. In the company's device air, after subjection to filtration and a process by which ammonia and sulphurous acid are removed, has its oxygen contents reinforced by ozone, and is then redistributed into the atmosphere by a fan. The ozone is produced by electrical discharges, and the amount mixed with the air can be regulated at will. The air fan can also be used independently of the ozonizing plant. The system is now being employed on the premises of a good many commercial undertakings and in some public buildings, and is understood to be applicable to bedrooms and other apartments of private houses.

Reviews.

ALBINISM IN MAN.

THE first two parts of a *Monograph on Albinism in Man*[1], prepared by Professor KARL PEARSON, F.R.S., Mr. E. NETTLESHIP, F.R.C.S., and Mr. C. H. USHER, M.B., B.C.Camb., forming one of the Drapers Company's Research Memoirs, has been issued. The compilers state that they have been influenced in publishing this first section by two considerations—the first that further delay might suggest that the work would never appear at all, and the second that in this way the very great expenditure involved is diminished. The compilers express their acknowledgements for the invaluable assistance they have received from medical men and other friends in all parts of the world, and their hope that the appearance of this section will tend to direct inquiry into the channels in which experience shows that observation and research will be most profitable.

This work, which has been long looked for by scientific naturalists, will be warmly welcomed. It consists of two volumes, one of letterpress and one of portraits, chiefly from photographs. In the main it is a collection of rare cases, many of them exceedingly rare. It is probably only a third of what the work will be when complete. It is in every respect well got up, and whilst the illustrations, which are very numerous, are mostly good, the letterpress and appended notes give evidence of extensive research, and the whole constitutes an invaluable contribution to the natural history of man and the laws of heredity.

The authors have exercised great zeal in the search for examples of rare maladies, and have investigated various individual cases in a most painstaking manner. Examples of what have been called "piebald men" were supposed to be extremely rare, and this *Atlas* of plates exhibits a collection of them which will be most valuable to all interested in their study. The collection of very rare cases constitutes, indeed, one of the most important features of the work.

Those who may have expected that "a monograph on albinism in man" would deal chiefly with the well-known type of the complete albino will find that much wider ground has been taken, and, although it would be rash to say that this breadth has in some respects confused the subject, yet we must point the reader's attention to the fact that many cases are included which at first sight are not albinos. This matter will, no doubt, be fully discussed in that part of the work which has not yet appeared. It is impracticable to review as a whole the work of which we have only a part. It may, perhaps, be proved that piebald conditions and leucoderma are directly related to complete albinism, and may occur in different generations of the same family tree. We cannot avoid a fear, however, that, despite the labour which has been expended, the facts are as yet too few in number to justify the application of statistical methods. Unless, however, terms are strictly defined, it is, we cannot but think, desirable to keep many of the facts there placed in juxtaposition in separate categories.

So far as the text has gone, it does not appear to advance any novel suggestions respecting the study of the albino in the restricted sense. The question of inheritance was, of course, one of the most important which the authors proposed to investigate. It seems, however, not easy to go much beyond the conclusions at which our forefathers had arrived. A general failure of pigmentation, more or less complete, and not as a rule locally restricted, was their idea of albinism, and they knew that it occurred all over the world, and in all races, and believed that it was not more prevalent in one race than another, although it would naturally be much more conspicuous in some. These impressions appear to be endorsed by the authors, and their comments on certain conditions which they assume to be cognate will be read with the greatest interest.

We cannot but regret that, whilst they have dealt with the subject very widely with reference to human beings, they have restricted their inquiry to this branch of the mammalian family. Most instructive lessons as to the facts of albinism, in their sense of the word, are to be

[1] Royal 4 to; pp. 273. Text and Atlas. Part I. London: Dulau and Co. 1911. (Price 35s.

found amongst the domestic and other animals. The authors, indeed, appear to recognize that they cannot restrict their work to the terms of the title, and in the pages of their *Atlas* we find delineations of a white ferret and many of white hares. We wish, indeed, most heartily that we could have received a work from their pens dealing with the whole subject. It would be difficult to find authors better qualified for the task, and we could not easily mention a task in reference to this branch of physiology of more seductive interest.

It may be doubted whether it is quite correct to call a piebald a partial albino. The term "localized albinism" would be more correct if any real association can be asserted (see plate, H H). Greater exactitude in definitions is desirable. The terms "albinism" and "albinotic" ought, we think, to be restricted to conditions which are believed to be related in kind to the perfect or completed albino. If allowed to include all in which conditions of whiteness are recognized it becomes almost meaningless.

With regard to the illustrations, we may remark that more is expected of photography without colour than it can possibly give. A "xanthus negro" cannot be represented to any good end without introducing colour. The frontispiece and its companion are examples of what we mean, for it is impossible to recognize the albino.

Unless we are to be for ever misleading one another by the use of terms to which each of us attaches his own special meaning it is necessary that we should agree as to the signification which shall be attached to the words we use. To men such as Karl Pearson and Mr. Nettleship it is almost an impertinence to complain of the use of terms which are imperfectly understood. Yet it remains the fact that explicit definitions, first, of the word "albinism" itself, and next of "albino," "piebald," "leucoderma," "nigrition," and several others, would aid the reader's comprehension of the subject. We are grateful for the rejection of the adjective "true" in connexion with such words as "albino," but we venture to point out that the term "partial" is used as applicable to two very different conditions. The expression "complete albino" implies universal whiteness of skin and hair and a fire-red pupil, and we know of these conditions that they may be, and often are, present only in minor degrees. These lesser degrees claim the appellation of "partial albinos," but is it convenient to speak of a piebald animal under the same name?

The compilers state that the remaining sections are in an advanced state; the chapters on albinotic eye and hair in man and in animals are ready for the press, and we are told that those on the correlation between albinism and other defects, on the heredity of albinism, and on the statistics of the condition, are practically ready; while the detailed description of albinotic families, the bibliography of albinism, are already printed as appendices, as is also the third section of the atlas, containing 54 plates with more than 650 pedigrees. The second section of the atlas, containing the coloured plates, maps, etc., is also ready. It is therefore hoped that the final issue will be made in the course of this year, but we gather that this is to some extent conditional on the number of subscriptions. The volumes are issued solely to subscribers. The charges have been mainly defrayed out of the funds placed at the disposal of the Department of Applied Mathematics at University College, London, by the Worshipful Company of Drapers, out of a contribution to the expenses of drawing the pedigree plates made from the Treasury grant for research to University College, and from a sum, only slightly less than the total of these two, provided by the authors themselves towards the cost of illustration.

CARDIAC IRREGULARITY.

IRREGULAR action of the heart has been recognized as a clinical fact from the earliest days of clinical study, but it is only within the last twenty years or thereabouts that serious efforts have been made to arrive at an intelligible explanation of the cause or causes of such irregularity. The discovery that the contraction of the heart in its normal cycle invariably followed the same course, beginning at the base of the organ at the point of entry of the great veins, opened up at once a very wide field for research, in which the explanation of the abnormalities of rhythm might possibly be found. But the inquiry was difficult; the necessary experiments upon the living heart were not such as could be successfully undertaken by other than skilled observers, but the fascination of the pursuit of such a vitally important secret called forth the best energies of scientific investigators in many lands, and the fruit of their labours is now being given to the medical world in collected form.

From Paris we have received two works upon the clinical aspects of the subject, one of which is devoted entirely to the study of irregularity of rhythm,[2] while the other[3] deals somewhat more generally with circulatory abnormalities. But it is interesting to note that, although presumably influenced by the same school, the two authors adopt diametrically opposite views as to the genesis of the abnormal action of the cardiac muscle, each adducing the same evidence, but deducing different conclusions from it. On the one hand it is asserted that the neurogenic theory is now regarded as quite worked out, while on the other hand it is maintained that the myogenic theory is altogether inadequate to account for the facts observed. This radical difference of opinion is in each case well argued and for the most part supported by experimental evidence. Many of the results obtained by experimental research are, however, open to more than the one interpretation, and it can only be by further work in the same direction that a common basis of agreement can be reached as to the parts played respectively by the central or peripheral nerve supply and by the cardiac nerves and muscles.

Dr. VAQUEZ's contribution takes the form of a handsomely-bound volume of clinical lectures, under the general title of *Les Arythmies*, in which he enters with minute detail into the phenomena generally described under the names of extrasystole, tachycardia, bradycardia, palpitation, etc. While the phenomena of the Stokes-Adams syndrome are fairly constant, and have been accepted as a clinical entity due to a definite cause, the conditions under which tachycardia are known to arise are by no means so universally recognised. That temporary disturbance of the heart's action may be brought about by a variety of outside influences, such as tobacco or alcohol, is known to everyone, but the more lasting increase in the rate of pulsation is not open to any such explanation, and must depend upon some condition within the heart itself by which the rapid action is maintained. In some cases the rapid heart beat has been found to be associated with definite organic disease, either of valve or muscle, but in others no lesion has been brought to light, and hence the continued over-action "must be ascribed to some form of morbid excitability peculiar to the individual, the cause of which remains obscure." This definition is by no means satisfactory, but it probably expresses the state of opinion at present among the majority of the profession.

Dr. Vaquez traces the sequence of cases of extrasystole, which he maintains is often followed by paroxysmal tachycardia, which in its turn becomes a permanent condition, but he admits the occurrence of either of the two first without any such sequelae. Paroxysmal tachycardia is often associated with disturbed function in other organs, but these are so inconstant in their appearance that no direct connexion with the cardiac condition can be proved. The sudden onset of the attack and its equally sudden subsidence serve, in the opinion of the author, to prove that the cause of the mischief is in the heart wall. In the presence of valvular disease or myocardial degeneration it may be a grave symptom, more especially where the arterial pressure is much lowered, but in the cases where no such lesions are present it usually is of short duration, although it may be the forerunner of more frequent attacks, and finally of a permanent condition. Much stress is laid upon the diagnosis of the exact condition of the left auricular appendix, but the difficulties attending such diagnosis are great. Dilatation of the appendix, if it can be discovered, is held to be evidence of back pressure, and possibly formation of clot. The alternate pulse, bradycardia, and persistent irregularity are each in turn made the subject of lectures which may be read with interest by every one who wishes to keep himself acquainted with the progress of modern thought on this complicated subject.

[2] *Les Arythmies.* By Dr. H. Vaquez, Physician to the St. Antoine Hospital in Paris. Clinical Lectures recorded by Dr. Ch. Esmein. With 48 figures in the text. Paris: J. B. Baillière et Fils. 1911. (Pp. 437.)

[3] *Clinique du Coeur.* By Dr. Arthur Leclercq, Laureate of the Academy of Medicine. Paris: Octave Doin et Fils. 1908. (Roy. 12mo. pp. 357.)

While the textbooks supply the details of technique and the record of observed facts, Dr. Vaquez's lectures supply the well-balanced thoughts of the clinician who seeks to apply the new knowledge to the elucidation of old experiences.

The work of Dr. LECLERCQ is also essentially clinical in its tone and approaches the study of the heart from the point of view of its rhythm. His book forms the second of a short series of works dealing with the diseases of the fifth decade, arterio-sclerosis, diabetes, and albuminuria being each dealt with in separate volumes. Between the ages of 50 and 60, many influences combine to put stress upon the heart. The average man or woman living an active life is apt to forget his or her age, and it is not until the heart gives warning that the advancing years are realized. Of all forms of disturbance of cardiac action, palpitation and tachycardia are the most frequent and the most difficult to explain. Dr. Leclercq, as has been stated above, declares himself to be a whole-hearted supporter of the neurogenic theory of origin for all such phenomena, although fully recognizing the effects of diminished blood supply and consequently impaired nourishment of the heart muscle. The greater part of his book is occupied with the examination of the numerous and varied conditions under which tachycardia is met with, and such lines of treatment as may be appropriate to each are indicated. The whole forms a very comprehensive account of all forms of heart irregularity as seen by the clinical physician, but with little reference to the more mechanical aspect of the subject as it presents itself to the experimental pathologist.

THE SUN CURE FOR TUBERCULOSIS.

DR. MALGAT'S work on the sun cure for chronic pulmonary tuberculosis[4] is well deserving of study. At the end of a very interesting and instructive preface, in the latter part of which reference is made to the work of all the leading physicists of modern times, and a summary given of the facts and principles established by them, the author presents his readers with a solar formula of Nice and the Mediterranean littoral. The observations have been most carefully made, and have extended over many years, during winter, spring, summer, and autumn. The excessive abundance of infra-red rays in the summer light between noon and 2 p.m., is said to be due to the fact that the tension of the vapour of water is then very elevated. The luminous intensity and chemical activity of the sun's rays have been most carefully considered and results as carefully tabulated. Indeed the author, by the extreme care with which his analysis of many individual cases has been conducted, has come to conclusions as to the positive effects of abundance of infra-red rays, being equally important in the production of anaemia, for example, with that of the rarity of luminous rays, when the two exist in common. The entire book points to a degree of precision and scientific accuracy that cannot fail to inspire confidence in the soundness of the methods of application, modification and supplementation which he advocates and practises. Nothing is suggested without apparently adequate reasons why that which is pursued at one period of the day or year is recommended rather than something else, and cases, of which many are given in detail, appear fully to support the principles enunciated. It is but fair to remark the caution displayed by the author in his report of cases, etc. He is never apparently desirous of disregarding difficulties or of claiming certainty when at the best only probability is attainable. Such expressions as "Cette excitation spéciale *inconnue*, mais réelle," occur again and again. When drawing attention to the result of exposing tuberculous patients to a daily insolation of twenty minutes' duration, and comparing a sound man after a similar exposure, and noting certain differences produced in the two cases, there follow the words: "This is a fact which requires explanation," whereupon an interesting and detailed comparison is given. The results obtained on Koch's bacillus, the necessity of the congestion, etc., are fully entered into. From one of the very interesting discussions of organic life, both animal and plant—namely, that of solar obscurity—most valuable general conclusions can be drawn; but notwithstanding such authorities as Charcot, Foucault, Bouchard, Videmark, Finsen, Hammer, who are referred to, we are inclined to believe that the readers of Dr. Malgat's book will probably agree with him in thinking that the question does not seem to have yet been completely cleared up.

[4] *La cure solaire de la tuberculose pulmonaire chronique.* Par le Dr. J. Malgat. Paris: J. B. Baillière et Fils. (Demy 8vo, pp. 390. Fr. 6.)

SKIN DISEASES AND GYNAECOLOGY.

THE relations of skin disease to female sexual functions have attracted the attention of observers from the days of the "wise man" till now, and Dr. SCHEUER has put all who are interested in the matter under obligation by his painstaking research among the records. The mere titles occupy thirty-three large octavo pages, and the references seem to be very carefully given, and abstracts are distinguished from original papers. Having acknowledged our gratitude to the bibliographer, we turn to the text in search of the dermatologist, but experience less satisfaction. In successive chapters under the headings of the various sexual periods, functions, and diseases, Dr. Scheuer has given short accounts of the cases which have been recorded as showing apparent linking of sexual function with individual affections of the skin. In this respect his criticism might well have been more stringent and the digestion of the material carried a stage further, but he has been very gentle with the old authors and relates even their explanations with great tenderness. In his own pathology he occupies, as we all do more or less, the position of the modern humoralists, but his method of falling back on the existence of intoxication from ovarian hypersecretion, from placental tissue, or from adrenal or thyroid or hypophysis reaction to a primary ovarian condition does not make for clearness of thinking, and he leaves for the explorer a wide hinterland in his summary sentence:

> In the origin of dermatoses there is not always direct production by these (internal) glandular secretions, but at times a denaturation of the soil in the sense of increased vulnerability underlies them.

This makes it rather difficult to state succinctly the practical yield of Dr. Scheuer's study. Even such a well-known clinical fact as the association of acne with the physiological changes at puberty is not elucidated by such a paragraph as—

> Directly or indirectly the acne of puberty is connected with substances arising from the internal secretion of the sexual glands. Either some substance formed by part of the sexual organs evokes the acne directly in virtue of its chemical composition or the absence or diminution of some product necessary or favourable for the body leads to an accumulation of metabolic products in the blood and these then give rise to the acne. Perhaps both processes go on simultaneously.

If we could accept this as a mere statement of ignorance it might stimulate to deeper search and deny us refuge in an at present blessed "toxaemia." As things are we must be thankful for the cataloguing which Dr. Scheuer has done for us. The chapter on the menstrual relations of skin affections is the longest in the book, and includes instances of nearly every condition in dermatology. The most prominent features apart from all those conditions which are directly modified by changes in the circulation are the tendencies to urticaria and acute localized oedema, the latter especially in the face; to herpes, especially genital, which is exaggerated in those suffering from venereal diseases; to hypertrichosis and erysipelas. In relation to pregnancy, the most prominent conditions are cases of herpes gestationis, impetigo herpetiformis, and chloasma, and the puerperium gives occasion for a full discussion of scarlatinal rashes. The relations of the menopause, artificial and natural, and of diseases of the genital organs, are all fully dealt with; and all who have occasion to inquire into any curiosity in the genital relations of the skin may consult Dr. Scheuer's list with the certainty of finding in it analogous observations already recorded, and frequently a summary account of the individual cases.

FISHERS AND FISHES.

THE month of May is the month of anticipation, and of all anticipatory delights there are few more keen than those which present themselves to the mind of the fisher-

[5] *Hautkrankheiten sexuellen Ursprungs bei Frauen.* Von Dr. Oskar Scheuer. Berlin und Wien: Urban und Schwarzenberg. 1911. (Sup. roy. 8vo, pp. viii, 204. M. 8.)

man, more especially if he be a hard-worked doctor. He may conjure up the glories of a summer afternoon by the side of a dry-fly stream in the South, with the lush grass springing up around its banks affording shelter to the fisher as he creeps up to reach the two-pounder feeding in the pool above; or, a still more entrancing vision (in the eyes of another type of fisherman) may be that of a lonely Highland loch, far away in the hills, with only the cry of the curlew or the call of the grouse to break the stillness or to vary the gentle sound of the breeze as it stirs the rushes where the big trout lie. Such mental pictures may bring refreshment to many a worried practitioner, and enable him to face his daily list with renewed vigour, in view of the possibilities which they suggest. Mr. RUSSELL writes of the chalkstream and the moorland[6] from personal experience, and his book is full of practical hints founded on careful observation of the habits of fish, flies, and fishermen. He tells frankly of his own failures no less than of his successes, and he has formed definite opinions as to the powers of special sense possessed by different varieties of fish which add greatly to the interest of the book, although they are not strictly in accord with the published experience of others. But the book as a whole may be commended to all, especially doctors, who love "quietnesse and vertue and angling."

NOTES ON BOOKS.

No. 41 of the Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India[7] is a monograph by Captain A. C. MACGILCHRIST, M.D., on the solubility and absorbability by various channels of quinine and its salts. The importance of administering quinine in the form and manner which shall secure the maximum of efficacy is obvious, especially in the treatment of malarial fevers; but comparison of the many published statements showed very great differences of opinion as to the respective values of different salts and the advantages of oral and rectal administration, subcutaneous, intramuscular, and intravenous injection. Captain MacGilchrist accordingly submitted the matter to special investigation, carried out partly in the pharmacological laboratory of Edinburgh University and partly in the Pasteur Institute of India at Kasauli. The conclusions arrived at, which would require too much space to be summarized here, furnish useful guidance on many parts of this important subject.

Through the Alps to the Apennines[8] is the story of a motor tour made by an art critic and his wife, an architect bewitched by the rococo, and an amateur photographer who was also something of a gourmet. Mr. KONODY has succeeded very well in conveying the special quality of the enjoyment to be derived from a motor tour, its uncertainties which appear glorious after the puncture has been mended and the rain has stopped, the beauties of Nature and art, the little intimate glimpses of rural life which the railway tourist misses, and the sense of the open air also denied to him. Owing to want of foresight too many tyre troubles had to be endured, and as usual too much was attempted in the time. But the descriptions of Volterra, S. Gimignano, and some other places off the beaten track, make the reader inwardly resolve that he also will dare the dust and the uncharted roads of northern Italy. If he carries it out he must take this book with him, though it be big for the purpose owing partly to the numerous photographs it contains. On the way back through Tyrol Mr. Konody transcribed a legend over the door of a wayside inn which, though we seem to have seen it before, is worth quotation as a humorous instance of the straits to which a man may be put to excuse his liking for alcholic beverages:

> Alkohol ist der Menschen groesster Feind.
> Aber in der Bibel steht's geschrieben:
> Deine Feinde sollst due lieben.

(Alcohol is man's greatest enemy. But in the Scriptures it is written: Thou shalt love thy enemies.)

[6] *Chalkstream and Moorland: Thoughts on Trout Fishing.* By Harold Russell, of the Inner Temple. London: Smith, Elder, and Co. 1911. (Roy. 12mo, pp. 248.)

[7] Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. (New Series.) No. 41: *Quinine and its Salts: their Solubility and Absorbability.* By Captain A. C. MacGilchrist, M.A., M.D., M.R.C.P., I.M.S. (Edited by the Director-General, Indian Medical Service.) Calcutta: Superintendent Government Printing, India. 1911. (Demy 4to, pp. 46; 9 tables. 10d.)

[8] *Through the Alps to the Apennines.* By P. G. Konody. Photographs and Sketches by E. A. Richards. Frontispiece in colour from a drawing by R. Little, R.W.S. London: Kegan, Paul, Trench, Trübner, and Co. 1911. (Roy. 8vo, pp. 382. 12s. 6d.)

Which may be paralleled by the profane syllogism Lord John Russell got from the old Spanish priest:

> Qui bene bibit bene dormit,
> Qui dormit non peccat,
> Qui non peccat salvatus erit.

THE FASTING CURE.

AT the present day when the health of the body receives so much attention, the question of diet is naturally very prominent. There are many and diverse systems, each of which has its prophet who holds that his own particular dietetic code ensures freedom from all earthly ills. The food fad embraces every variety from raw beefsteak to grape nuts. Now there seems to be a tendency to simplify the problem by dispensing with food altogether for longer or shorter periods of time. Mr. Upton Sinclair, who made our flesh creep some years ago with his "revelations" of the horrors of Chicago meat packing, has, perhaps by a natural recoil, become an apostle of fasting as a cure of disease and a means of preserving health.

It is unquestionable that most people eat too much, and fasting within certain limits has been recognized by physicians, as well as by philosophers and teachers of religion from remote times, as beneficial to soul and body. Mr. Upton Sinclair is only trying to revive the practice of the hermits of the Thebaid, and to rival the achievements of the Indian fakirs. A very pretty quarrel is at present going on between him and Dr. William J. Robinson, President of the American Society of Medical Sociology. Mr. Upton Sinclair says he has been obliged to give as much time to the investigation of medical questions as if he had taken out a complete medical course in any of the recognized schools. But instead of permitting the authorities to fill his mind with "the dead formulas of materia medica," he boasts that he has made practical experiments and has read the new ideas and thought for himself. He gives the following autobiographical details:

> For the first twenty-five years of my life I was a patient and humble follower and victim of the conventional medical school. I had "family physicians" one after another; I went to experts and specialists of various sorts. I visited sanatoriums and health resorts. I have figured out that in that period I spent a total of 15,000 dollars (£3,000) on physicians, surgeons, hospitals, and sanitariums in an effort to find health for myself and family. My wife underwent four surgical operations; my little boy nearly died on half a dozen occasions. And at the end of the experience all three of us were all but complete physical wrecks and all but hopeless neurasthenics.

It might be said that they were neurasthenic from the first, but apparently Mr. Upton Sinclair puts the blame for the sufferings of his afflicted family on the "dead formulas of materia medica," whatever these may be. So he threw over the doctors and took matters into his own hands. The result is that to-day he has gained 25 per cent. in weight, and he tells us that his pictures are sometimes mistaken for those of a prize-fighter. Having seen some of these pictures, which Mr. Sinclair publishes to show what fasting can do, we can only say that we are as anxious to know what the American idea of a prize-fighter is as Mr. Pecksniff was to learn Mrs. Todgers's notion of a wooden leg. Mr. Upton Sinclair goes on to say that he no longer has diseases nor thinks about them. It is clear that he thought a great deal too much about them before; but as to his no longer having them, we would remind him of the wise saying of Falstaff's doctor, that "for the water itself it was a good healthy water, but for the party that owed it, he might have more diseases than he knew for."

As an instance of the curative powers of fasting, Mr. Upton Sinclair cites the case of a man who had been unsuccessfully operated upon by his surgeons, and was given up for dying, and was being slowly killed by morphine as the alternative to enduring the most awful agony. This man, he says, began fasting, and by the fourteenth day was almost completely restored to health. This is only one, we are told, of a hundred cases. Of course, from vague statements of this kind no conclusion can be drawn, except, perhaps, that among the other qualities produced by fasting credulity would seem to occupy a prominent place. Mr. Upton Sinclair, however, commits himself to an extremely definite statement when, speaking of malaria, gonorrhœa, and syphilis, he says that the patient can cure

any one of these diseases with absolute certainty by fasting for a week or two. We are further told that chronic kidney trouble, typhoid fever, etc., can be cured in the same way and in the same time, "but, of course, may last for months under the drugging and feeding regimen."

From all which we infer that the new ideas "read" by Mr. Sinclair are so remarkable that, as Dr. Robinson points out, they would not only revolutionize medicine, but do away with the need for doctors. He challenges Mr. Sinclair to bring his statements to a definite test. He offers to stake a thousand dollars against a similar sum staked by Mr. Sinclair. He will infect Mr. Sinclair with gonorrhœa or syphilis; that gentleman will then fast a week or two, or even three or four, and undertake no medical treatment. If at the end of the fasting period he is well, the £200 is his; and Dr. Robinson will proclaim publicly that medicine is a fraud and a humbug, and that fasting is the cure for all diseases. On the other hand, should the fast fail, Mr. Upton Sinclair is to confess that his theories about disease are wrong and misleading, and that his strictures on the medical profession are pernicious and unjustifiable. Dr. Robinson points out that Mr. Sinclair cannot reasonably object to the test, as fasting to him is nothing, and according to his own declaration he is certain that by that means he can be cured of the disease in a week or two. The benefit to the human race from such a public experiment could not be expressed by millions. Dr. Robinson adds that he has chosen the diseases mentioned because they are within his speciality, and he always has patients from whom he could take infective material. But there is, he says, another infectious disease which is not self-limited in duration. It has hitherto been believed that insufficient nourishment is the cause of a good many diseases, and in particular is a potent factor in the development and prevalence of tuberculosis. In sanatoriums this theory is acted on, and patients are made to consume large quantities of eggs, meat, milk, and cream. Dr. Robinson goes on:

> Strange to say, this excessive feeding seems to do the poor emaciated patients good. They gain flesh, they stop coughing; the cavities in their lungs close up, and the tubercle bacilli disappear, but apparently it has all been an error. Henceforth we shall have to advise the sanatorium physicians to starve their patients.

And when, he adds, in the future the socialists discourse of tuberculosis as an economic disease they will appeal in vain to the sympathy and co-operation of the medical profession. Why, indeed, should conditions of life be improved? Why should wages be increased? In fasting lies our hope of redemption from the white scourge as from all other diseases, and fasting is certainly cheap.

We should be glad if Mr. Upton Sinclair's view proves correct, as this would have the immediate effect of setting free for other purposes the millions which Mr. Lloyd George proposes to devote to the extermination of tuberculosis. It is indeed a fascinating theory, and should solve all manner of problems that have perplexed political economists, and have been stones of stumbling to practical statesmen. The course of human history, we have hitherto been led to believe, has mainly been determined by a struggle for food supplies. In future, if the Upton Sinclair doctrine prevails, human life will be greatly simplified, and we can all live out our length of days without taking thought of to-morrow's dinner. It is a beautiful dream. But when we compare the children of the poor with those of the well-to-do, and when we observe, as we do, that the contrast becomes more and more marked as they grow up, we cannot help feeling that after all the food factor is one of the most important elements in the health of the individual and in the well-being of the community. The fasting cure in moderation is good for those who habitually overstrain their powers of digestion. But it is not a panacea. It is almost needless to say that Mr. Upton Sinclair has found an excuse for declining Dr. Robinson's challenge. To speak strictly, he has found two: He professes to think the challenge a joke; moreover he is too busy, and has other things to do with his time! As regards the former excuse, we can only envy the facility with which Mr. Upton Sinclair is amused; in this happy disposition he rivals the friends of Mr. Peter Magnus. But that he should be "too busy" to put his fasting cure to the touch of experience in diseases chosen by himself suggests that, despite his brave words, he is not quite confident of the "certainty" of his cure.

ALCOHOL AND INSANITY.

The annual meeting of the Society for the Study of Inebriety was held on April 11th under the presidency of Dr. Theo. B. Hyslop.

Alcohol and Insanity.

It was chiefly devoted to a discussion on the subject of "Alcohol and Insanity," opened by Dr. F. W. Mott, F.R.S. The discussion was prefaced by a short address from the chair on the work of the society, in the course of which Dr. Hyslop said that, both in this and in other countries, the work done by scientific investigators had been so extensive and so real that the conclusions arrived at had enabled temperance advocates to continue their work with a cheerfulness and sense of justification hitherto but seldom attained. The work of the Galton Eugenics Laboratory, of University College, London, had stimulated into activity some of the most able thinkers of the day, and in that respect the famous memoirs had been the indirect cause of much benefit, inasmuch as, by attacking problems the solutions of which had already been determined in the public mind, they had in reality emphasized certain truths which, although capable of still further elucidation and precision in definition, formed the very basis on which the cause of sobriety had formerly appeared to have been justified. It was of interest to note that the problem of the influence of parental alcoholism on the physique and ability of offspring would be discussed at the next International Congress against Alcoholism, which meets at The Hague in September next, and Dr. Hyslop, as president of this society, had been asked to open the discussion. When one turned from the work of this and kindred societies to the consideration of some of the effects of that work, one could not fail to be struck by the fact that the community at large was becoming more and more awakened to the dangers of an indiscriminate or excessive use of alcohol. The knowledge that civilization had brought with it not only a more highly constituted nervous mechanism, but also one less tolerant of the effects of alcohol, had done much to diffuse a general wave of temperance throughout the land. To members of the learned professions alcoholism usually signified mediocrity in personal attainment. Survival of the fittest meant for them abstention from everything that tended to blunt the higher mental functions and susceptibilities. Abstention was for them but the tacit acknowledgement of the possession of a nervous mechanism so finely constituted that, it being their chief asset, they could not afford to tamper with it. It was now a stale observation that alcoholism impaired commercial efficiency, and London could tell a tale of reform in the matter of drinking which had afforded an example to be followed by every other centre of commerce throughout the world. The ever-increasing complexities of machinery and mechanical invention required a mental and physical alertness but little known to their forefathers. The individual experiences of those who had to control machinery force convictions which were becoming more and more evident. Even the taxi-driver openly admitted that things were different now, and that he could not afford to drink. In play, also, they found more common sense and temperance. There were always two classes of individuals in sport and play—those who aspired to play and those who played to perspire. To the former, let him aspire to be in the front rank of cricket, golf, tennis, football, billiards, or any other sport or game, his experience told him that his handicap would bear a certain ratio to his use or abuse of alcohol. To be clear in vision and readily adaptive in reaction, the sportsman and the athlete alike must choose between success and failure—the latter being coupled with self-indulgence in alcohol. Not only did alcohol impair efficiency, but it diminished staying power, and nowadays it was being almost entirely discarded from use where there was any real aspiration to succeed or excel. Of the second class, including as it did the "liver brigade" and the thousands of elderly sportsmen, golfers, and others who exercised themselves in order to get rid of the effects of self-indulgence or to counteract the effects of a too sedentary life, he had little to say. Were it not for such pastimes and an abundance of fresh air and exercise, many plethoric individuals who had also been brain workers would stand but little chance of survival.

Dr. MOTT then delivered his address, which was illustrated by demonstration with the epidiascope. He said many difficulties presented themselves in an inquiry upon the subject of chronic alcoholism in relation to different forms of insanity when based upon data obtained from the numerous London County asylums, where different forms of classification were in use, and where often a different nomenclature was employed. Again, where a varying degree of interest occurred, and where personal opinions by medical officers concerning alcohol as an effective cause perforce existed, collective and comparative statistics, instead of helping to solve the question, made for confusion. Interest and diligence in interviewing relatives and friends to ascertain facts, instead of relying upon a printed form, which was seldom filled up, he had found, made a great difference in obtaining reliable information concerning the following necessary data: The cause of the patient taking to drink; the nature of the drink and the quantity taken; the period of time the patient had been drinking; was it taken with food or instead of food? was it taken because he was employed in an occupation where it was always obtainable, or because his occupation caused thirst? or was it taken because he was miserable and depressed? Again, it was necessary to ascertain whether drinking to excess, or the transition from moderation to intemperance, was merely one of the signs of the mental breakdown. Such a circumstance frequently occurred in incipient general paralysis; again, it often preceded or accompanied an attack of mania depressive insanity, involutional melancholia, and other forms of insanity. It was only when asylum statistics relating to intemperance were based upon such complete data as he had above indicated that they could be taken seriously. He threw on the screen a table relating to alcohol and insanity for thirteen years in the London County asylums, which showed that there was a great variability of percentages in the same asylum for different years and in different asylums for the same year (although the admissions were drawn from the same class of the population)—such a difference as could only be explained by a difference of opinion by medical officers as to what constituted evidence of alcoholic excess, or that other factors contributed or were in reality the cause. Not only had they, however, to take into account the personal equation of the medical officers who obtained, or failed to obtain, the requisite information, but also of the friends who gave or failed to give, the information required to establish alcohol as a cause of the patient's mental affection. This variability was so marked that it could not be explained by the individuals admitted. Thus, in the year 1902, from the same class of people, alcohol was the assigned cause of 25.6 per cent. of the admissions to Hanwell, and to Claybury it was only 11.2 per cent.; but in 1906 in 28 per cent. of the admissions to Claybury intemperance was the assigned cause, while at Colney Hatch it was only 14 per cent.

At Bexley Asylum, where a modern classification was adopted, and where the statistics appeared to be nearly uniform since its opening, intemperance as an assigned cause was very high, the average being 22.8 per cent. for the seven years. An analysis of the cases admitted during 1905 to this asylum, in which intemperance was an assigned cause in 25.7 per cent. of the total admissions, showed that there were a large number of cases in which there were other, and probably more important, causes. Of 248 male admissions, alcoholic excess was assigned as a principal cause in 46, or 18.5 per cent.; and out of the 246 female admissions, alcoholic excess was the principal cause in 38, or 15.4 per cent., a total percentage on the whole admissions of 17. But when one inquired into these cases one found that 13 were imbeciles, 13 epileptics, 5 were chronic delusional insanity, 5 organic dementia, and no less than 20 were primary dementia. In fact, quite one-half were imbeciles, epileptics, lunatics, or potential lunatics, and in a majority of the cases doubtless the subject of an inborn tendency to mental disease. Dr. Mott's experience at Claybury and the other asylums corroborated this statement. Moreover, he had found that the notes showed hereditary insanity or epilepsy quite as frequently in these so-called "alcoholic" cases as in other forms of insanity, and much more frequently than in general paralysis. In the family histories of these cases of insanity as a result of intemperance, there were found frequently neuroses, criminal degeneracy, imbecility, epilepsy and insanity. In the personal histories, inherent instability was frequently found in the form of neuropathies, imbecility, criminal degeneracy, epilepsy, and intolerance of alcohol, as manifested by previous admissions, when they were termed recurrent mania, recurrent melancholia, or mania-depressive insanity. Sometimes there was a history of a head injury or organic brain disease, and not infrequently incipient or early general paralysis. Some few cases were admitted on account of murderous assaults or sexual crimes, to which might be added a considerable number of attempted suicides.

Coincidence and cause might thus be confused, for a lapse from moderation to intemperance might be the first *recognizable* sign of the mental breakdown. Especially was this the case with the involutional psychoses occurring at the climacteric period in women; also men and women between 50 and 60 who suffered from melancholia, and at the same time were the subjects of arterio-sclerosis. Again, general paralytics and cases of adolescent insanity might take to drink. There could be no doubt that neurasthenics, hysterics, epileptics, imbeciles, degenerates, eccentrics, and potential lunatics—all those, indeed, with an inherent narrow margin of highest control—were markedly intolerant of the effects of alcohol, and the failure to discriminate between what was the *result* of alcoholism and what was innate and *due to inheritance* had been the cause of much confusion. As physician to Charing Cross Hospital for the past twenty-five years, Dr. Mott said he had seen a large number of patients the subjects of chronic alcoholism. He had seen numbers of persons who had drunk for very many years large quantities of alcohol in the form of beer or spirits, or both combined, and yet these patients had shown no signs of insanity, the only apparent effect upon the mind being the establishment of a vicious habit denoting a lack of will power and moral sense. Situated amidst the theatres, restaurants, music halls, and places of amusement, Charing Cross Hospital received a number of persons who were intemperate in the pursuit of pleasure; also it received a number of people engaged either directly or indirectly in the liquor traffic, or whose occupations led to prolonged intemperance. Among such were potmen, barmen, barmaids, publicans, prostitutes, waiters, cooks and kitchen servants for hotels, stage-carpenters, scene-shifters, cabmen, bus drivers and conductors, and particularly Covent Garden porters, who were addicted to drinking large quantities of beer. As a rule, all these people were, when they were brought to the hospital for relief, in employment. He regarded this as a very important point in connexion with the nervous symptoms which might be manifested as a result of prolonged intemperance, because to the casual observer certainly, and to the skilled observer often, no marked mental deterioration might be discoverable in a large proportion of these inebriates when the effect of the liquor had passed off. Occasionally a head injury or other injury, a surgical operation, the onset of disease, especially pneumonia or other microbial infection, or an extra bout of drinking, might result in delirium tremens, for which the patient might be brought to the hospital, or which might develop after he had been admitted, and when alcohol was withheld. A considerable number had been admitted into the wards for liver affection and dropsy. A few cases, proportionally, of polyneuritic psychosis occurred, especially in women, and the majority of them left the hospital cured. All the mental symptoms passed off by withholding the alcohol, and by careful diet and nursing, etc., the paralysis caused by the neuritis persisting, as a rule, long after the mind had cleared. It was, however, difficult to judge whether the patient really was the same as before the onset of the mental symptoms. Some cases, he was sure, were mentally enfeebled. This form of polyneuritic (Korsakoff) psychosis met with in hospital, occurring especially in women, but also in men, was identical with that seen in asylums, although not very common in either. It was far more frequently met with in women than in men in both asylums and hospitals. In hospitals it was the paralysis and the neuritic symptoms which were predominant as a rule, whereas in asylums it was the mental symptoms. But he believed neither were entirely absent. Although the notes frequently did not mention mental symptoms, he was

convinced that very seldom in any case were they completely absent if the patient were carefully examined in hospital cases. Conversely, in asylums (in spite of the fact that the knee-jerks might be present or increased instead of absent) some evidence of neuritis was almost invariably present, and might form an important causative factor in the production of hallucinations and delusions.

Many of these cases, both in asylums and hospitals, with characteristic mental symptoms arose in married women who, without, perhaps, ever having been drunk and incapable, had acquired the habit of continuous tippling, sometimes secretly. He had observed that in "Korsakoff psychosis" chronic alcoholism was very frequently associated with some other morbific factor—for example, septic infection from a miscarriage or abortion, gonorrhœa, endometritis, parametritis, salpingitis, syphilis, pneumonia, or pulmonary tuberculosis—that it was difficult to assert in these cases how far the mental and neuritic symptoms might be partially due to such cause, and not solely to the direct effects of the alcohol on the nervous tissues. Still, it might safely be said that if they had not been chronic inebriates there would have been no nervous or mental symptoms.

It might be said with justice that their system of relief of the sick and suffering poor did not admit of a just appreciation of the effects of alcohol in the production of insanity. For the hospitals would not receive cases of mental affection due to alcohol; they would be sent or transferred direct to the infirmaries. Still, it was from the infirmaries that all the cases were received at the asylums; therefore drink cases with mental symptoms must either be discharged cured or certified and sent to the asylums. He had already given reasons why the statistics which asylums afford relating to the percentage of admissions in which alcohol was the *assigned cause* of insanity, could not be accepted as reliable until more comprehensive and reliable data were forthcoming. Admitting that experience in hospitals and private practice indubitably showed that a large proportion of the population were able to drink large quantities of alcoholic liquors for long periods of time without becoming insane, it followed that another factor was in operation in the majority of cases of insanity in which alcohol was assigned as a cause of admission to the asylums. That factor, in his opinion, was in the great majority of cases the neuropathic or psychopathic tendency due to inheritance. He had long been struck by the fact that, whereas cirrhosis of the liver with ascites was relatively common in the wards and *post-mortem* room of the hospital, he had only once seen a case of advanced cirrhosis with ascites at the asylums, and that was in the case of a notorious police-court character who was convicted of drunkenness nearly four hundred times before she was found incapable of taking care of herself and certified as insane. If she served no other useful purpose in life, she afforded a constant object-lesson of the insufficiency and inefficiency of the laws dealing with chronic inebriates. He compared the statistics of hospital and asylum *post-mortem* examinations, and was struck by the fact that in the former there were a large number of cases of advanced cirrhosis of the liver, whereas in the latter there were relatively very few. [Dr. Mott threw on the screen a synopsis of statistics of hospital and asylum *post-mortem* examinations.] He said that since he compiled these statistics he had again collected more data, and whereas he found in 2,000 *post-mortem* examinations at Charing Cross Hospital 110 cases of cirrhosis of the liver, 60 per cent. with ascites, he found only one with ascites at Claybury, and that was the case alluded to.

At Claybury, in only one instance of the 23 cases was cirrhosis of the liver mentioned as the assigned cause of death, whereas at the hospital in over 72 per cent. of the cases of cirrhosis of the liver the affection of the liver was assigned as the cause of death. This showed how very much more marked was the cirrhosis of the liver in the hospital cases as compared with the asylum cases. It was noteworthy that the few cases of well-marked cirrhosis met with on the *post-mortem* table at the asylum were large livers, and they occurred in persons who had a well-marked history of chronic alcoholism, and who during life presented physical signs and mental symptoms of "Korsakoff psychosis." A short time ago Sir Victor Horsley wrote to him asking for information upon certain points relating to this question of alcohol and cirrhosis of the liver in hospitals and asylums. In reply, he stated that there was generally definite evidence of prolonged abuse of alcohol in the notes of the hospital cases of cirrhosis. Usually the amount of beer or spirits taken was given, and the period or time it had been taken. In reference to the asylum cases, he found the most meagre information of relatively only a few cases. He had gone through more than 2,000 cases in their *post-mortem* records with the view of ascertaining facts concerning the quantity of alcohol taken, and the period of time, in all cases that had died in which the diagnosis on admission was alcoholic insanity or alcoholic dementia. If such evidence as the notes copied from the case-books afford were used as a proof of alcohol being an important cause of insanity, he was afraid they would prove the reverse. The following was a tabular summary of this inquiry:

MALE ALCOHOLICS.

13 Cases from 1,025 Autopsies (1.2 per cent.).*

Average age on admission = 57.2.
Average age at death = 62.7.

1. In every case it was the first attack.
2. There are no notes stating the quantity or kind of alcohol consumed, or the period during which it was taken.
3. Five cases were resident under three years, the remainder for periods up to eleven years.

FEMALE ALCOHOLICS.

46 Cases from 1,048 Autopsies (4.4 per cent.).*

Average age on admission = 53.
Average age at death = 57.

1. In thirty-nine cases it was the first attack, in two cases former history not known.
2. Very few notes concerning quantity and kind of alcohol consumed, or period during which it was taken. The following were the only notes given (nine cases):

(*a*) Brandy and gin for three years.
(*b*) Whisky—quarterns daily.
(*c*) Temperate and steady.
(*d*) Gin and whisky fifteen years.
(*e*) Sometimes bottles of gin a day.
(*f*) For three months.
(*g*) For some years.
(*h*) Every now and then.
(*i*) Whisky, stout, and ale, in bouts for seven years.

3. Twenty cases were resident one year or less; ten cases were resident from one to three years; the remainder, periods up to ten years.

It was noteworthy that, among 2,077 cases that had died at Claybury, and upon which autopsies had been made, only 2·7 per cent. of them were diagnosed *on admission* as "alcoholic" or "(?) alcoholic," the 46 females in 1,048 being 4.4 per cent., and the 13 males in 1,025 being 1.2 per cent. If alcohol were the important factor that asylum statistics appeared to show, it was hardly reconcilable with these data. It would be observed, moreover, that among the females the curves of age incidence on admission and death closely corresponded, and that the maximum occurred about the climacteric period. It would also be noted that the average age of death in women was quite as high as that of the average age of death of the total population. Another important question which Sir Victor Horsley addressed to him was whether cases of alcoholic insanity and dementia, admitted with cirrhosis of the liver, might not, by the withholding of alcohol for a considerable time, show such an improvement in the condition of this organ that it might account for the relatively few cases showing cirrhosis at death as compared with hospital cases. It would be observed that, of these 46 females out of 1,048, the average period of time elapsing between admission and death was, generally speaking, short. Moreover, by far the most marked case in females which he had seen of cirrhosis was that of Jane Cakebread, who was more than two years in Claybury, and a considerable time previously at Duxhurst; yet she developed marked ascites while in the former institution, and died with a most pronounced hobnail liver. The very few cases which showed liver enlargement or obvious naked-eye cirrhosis which might be attributed to alcohol as a prime factor were cases of multiple neuritic psychosis, with well-marked symptoms and permanent dementia caused by changes in the cell

* This includes a considerable number of cases in which the diagnosis was "(?) alcoholic dementia or alcoholic insanity." It is not claimed that this represents the true estimate of alcohol in relation to insanity, but it shows that we must be careful in accepting high estimates of the correlation of alcohol and insanity.

and fibre structures of the central nervous system. They were in all six in number. Curiously enough, the one male who showed a well-marked change in the liver (hypertrophic cirrhosis) at the *post mortem* examination was the one who had been the longest time in the asylum—namely, seven years. He did not, therefore, think that Sir Victor Horsley's suggested explanation could account for the facts he had brought forward regarding the relative infrequency of cirrhosis of the liver in asylum cases as compared with hospital cases. In fact, this further inquiry supported his contention that heredity was the predominant factor in all cases of admission to asylums that were not due to acquired organic disease, and he included under organic disease general paralysis of the insane, which he thought Sir Victor Horsley would agree with him was due in the main, if not entirely, to syphilis. Dr. Mott freely admitted, however, that the abuse of alcohol aggravated the effects of syphilitic infection, and was an important coefficient in accelerating, and even determining, the onset of all organic nervous diseases, just as it did functional neuroses and psychoses in individuals of a neurotic or insane temperament. In connexion with the problem of causal relationship of alcoholism and certifiable insanity, it was of interest to note that Drs. Sullivan, Bevan Lewis, and Macdonald had shown a regional dissociation between alcohol and insanity. Thus, inland and agricultural communities had the least inebriate, but highest ratio of pauperism and insanity. Maritime, mining, and manufacturing communities above all others were the most intemperate, but revealed a lower ratio of pauperism and insanity. Dr. Sullivan, by careful analysis and tables, had shown that in the regional distribution of insanity it was difficult to trace any evidence of alcoholic influence, such as might be expected if alcoholism really accounted for one sixth of the total number of cases. Thus Lancashire, Warwickshire and Cheshire, which ranked very high in the scale of alcoholism, and the mining counties, where drunkenness was rife, were alike in showing comparatively very low rates of insanity. Sullivan concluded that alcohol as a cause of certifiable insanity fell a good deal short of 16 per cent., at which it was rated in the official statistics, and might be something under 10 per cent. There was, however, in Dr. Mott's opinion, a reason why agricultural communities in England should have a higher percentage of paupers and lunatics: it was on account of the migration of the mentally and physically capable men and women to the industrial centres, leaving the feeble in mind and body to procreate their species; and this at the present time was a matter of national importance. While the drink bill was annually falling, the percentage of insanity in the population was rising. If alcohol was not responsible for certified insanity to the extent generally believed—indeed, it might be a means of elimination by weeding out those who inherited a lack of higher control—yet there could be no question that it was the most fruitful cause of pauperism and crime. Sullivan asserted that 60 per cent. of the crimes of violence were due to drink. Moreover, Dr. Mott thought it would be well if the fact were recognized that the chronic inebriate was not infrequently quite as antisocial, and often more so, than the lunatic. Drink was not only the cause of a great number of crimes, but of great misery and human suffering; it caused disease and accelerated and aggravated diseases caused by pathogenic organisms—for example, tuberculosis and syphilis. Moreover, it was the indirect cause of venereal infection in a large proportion of the cases. He was of opinion that the chronic inebriate might be as dangerous to himself, and as harmful and dangerous to society, as the certifiable lunatic, and should, when other means failed to cure him of his antisocial habit, by which he had become a permanent and constant menace to his family and the community, be segregated for long periods, whether he willed it or not.

Again, they had to consider the cost to the ratepayer of drunkards. Quinton (*Crime and Criminals*) said:

> In 1908-9 the committals for "simple drunkenness" and drunkenness with aggravation were close on 63,000, or about one-third of the total committals from ordinary courts; and although there were many occasional drunkards included in these figures, the greater proportion had had previous convictions for the same offence.

Quinton referred to the failure of the Inebriates Act, and concluded a chapter on social defection by saying:

> Large numbers of persons who are socially inefficient—some from physical inefficiency, others from mental deficiency, and others from confirmed inebriety—will be excluded for considerable periods, and prevented for the time being from propagating their kind; whilst the public, on whom they depend for their living, will be spared much pecuniary loss and much untold misery which these wretched folk inflict on their relatives and all who are connected with them.

Passing to the consideration of chronic inebriety among the feeble-minded, Dr. Mott said he would illustrate this point by showing the photographs of a number of chronic inebriates who were sent to reformatories, and he would call their attention to the striking evidence, in the physiognomies, of degeneracy and feeble-mindedness. This fact he would correlate with an extract from the report of Dr. Branthwaite for the year 1905, concerning certified inebriate reformatories established under the Inebriates Acts, 1879-1900. On p. 10 he remarked:

> Upwards of 62 per cent. of the persons committed to reformatories under the Act are found to be insane or defective in varying degree. I am satisfied that the majority of our insane inebriates have become alcoholic because of congenital defects or tendency to insanity, not insane as a result of alcoholism, and that the drunkenness which preceded alcoholic insanity was merely the herald—the only obvious sign of incipient mental disorder. In relation to the final insanity, drunkenness in such cases is the intensifier, perhaps, but not the cause of the disease. These chronic alcoholics, who eventually come under the care of the State, may be divided into two classes: (*a*) Degenerates, imbeciles, and epileptics; (*b*) moral and social defectives.
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> A marked intolerance to the action of alcohol is present in both the refractory and quiet class of defectives, very small quantities of drink, no more than is taken daily without apparent physiological effect by an ordinary individual, being sufficient to cause disorderly and violent behaviour. *Our experience in this direction has led us to accept the view that intolerance of the exciting effects of small quantities of alcohol may be considered a fairly certain sign of impaired mental equilibrium.*

Dr. Branthwaite's experience corroborated, therefore, Dr. Mott's statement that small quantities of alcohol acted as a poison to all those who inherited a lack of highest control.

Archdall Reid had argued with considerable force that the most temperate races were those which had consumed alcohol for the longest periods of time, natural selection and survival of the fittest having eliminated those who had an inborn tendency to drink to excess or who were unduly susceptible to its influence. The Jews were notably a temperate people, yet insanity was more prevalent among them than Christians; no doubt this might be partially explained by the fact that this race had survived and multiplied and acquired an extraordinary power in many lands by the possession of that neurotic temperament associated with quick perception and intellectuality. The very fact that the Jew had survived under the most adverse conditions, not by physical strength but by quick-wittedness, had led to the inheritance of a more active but more unstable mentality increased by racial purity. Again, it was well known that among Quakers insanity was very prevalent, although as a community they were the most temperate class of the population. This might be explained by intermarriage.

The vexed question of transmission of acquired characters, especially in relation to alcoholism, was one of great importance and interest. That the germ cells were sequestered "in the body, and not of the body," therefore not participating in the biochemical changes which occurred therein, and that in prolonged toxic conditions they were uninfluenced in their nutrition and specific vital energy, was contrary to reason. It might, therefore, be asked how it was, as so often happened, that a chronic alcoholic might have offspring mentally and physically sound. The question was wrapped up in the causes which led a man or woman to drink, and his observations and the facts he had brought before them seemed to show that a man who could drink continually for numbers of years, and keep out of a lunatic asylum, a prison, or a hospital, must have possessed an inherent stable mental organization, and he in a measure transmitted this, the virility of the stock remaining potent in spite of the ruinous habit he had acquired, although it was probable that his offspring would have been stronger and fitter had he been a

temperate man. Drunkenness in successive generations would, he believed, undoubtedly lower the virility, and mental and physical degeneracy of the stock would result.

But Nature was always striving to go back to the normal average in one way or the other. On the one hand it might happen that the children, witnessing the fearful effects of drink in the parents, became total abstainers: for he had very frequently noticed that the children of chronic drunkards, especially when the father drank and the mother was temperate, were total abstainers. Or, on the other hand, mental and physical defectiveness associated with drunkenness of the stock in one generation might, by the "law of anticipation," lead to its appearance in a more intense form and at an earlier period of life, either at birth or adolescence, and the stock in consequence died out.

There could be no question that chronic alcoholism did figure largely in the pedigrees of many of the patients admitted to asylums, but the same occurred, though he could not think so frequently, in the pedigrees of hospital patients. Of this, however, he had not sufficient precise data to make any absolute statement. Since he had established the card system of all the relatives in the London County asylums, he had come to the conclusion that many of the statements and statistics made in respect to alcohol being the direct cause of insanity and epilepsy appearing in a stock must be accepted with reservation until more precise data were obtained. It has long been the opinion that chronic drunkenness of the parents might lead to mental degeneracy in the offspring, in the form of feeble-mindedness and epilepsy. How far, however, this was due to the alcohol and how far to the weak will-power and lack of moral sense that led to the man or woman becoming a chronic drunkard, it was difficult to decide. He did not believe that a desire for alcohol was transmitted from parent to offspring in the form of *like begetting like*, but a tendency to like; that was to say, then, an inherited weak will-power and lack of moral sense might be transmitted, whereby the individual was more susceptible to temptation and imitation, and in this way environment played an all-important part.

The psychoses which occurred in the subjects of chronic alcoholism might be divided into the following groups:

1. Mental affections which were the result of the direct or indirect action of alcohol upon a usually previously healthy brain for a considerable period of time, causing delirium tremens and polyneuritic psychosis (Korsakoff's disease). Occasionally such cases terminated in a permanent alcoholic dementia in which recognizable structural changes in the brain were demonstrable.
2. Mental affections resulting from alcoholism occurring in an individual who was either potentially insane or possessed a morbid temperament. At least, this was the explanation he would offer, because the cases in many respects were hardly distinguishable from insanities occurring in abstainers.
3. Cases in which Groups 1 and 2 might be combined.
4. Dipsomaniacs. This might almost be looked upon as a form of periodic insanity in which there was an obsession for an unnatural craving for alcohol; in the intervals the patient might lead a blameless life.

There was a form of insanity associated with alcohol termed "alcoholic hallucinosis," but it was very difficult to decide simply by the character of the hallucinations and delusions alone whether alcohol was the principal cause. Should these hallucinations persist, especially auditory hallucinations, while the mind otherwise was clear, it was probable that alcohol had only acted as a coefficient. Consequently, it was often very difficult to differentiate such cases from paranoia or hallucinating insanity occurring in non-drinkers; moreover, the chronic forms might begin insidiously or by an acute onset in both drinkers and abstainers.

Certain signs and symptoms might be regarded as pointing to alcohol as the effective cause—viz., the existence of physical signs and symptoms indicative of an attack of delirium tremens; the existence of physical signs and symptoms of visceral disease (for example, an enlarged liver) and the evidence of neuritis, associated with any of the characteristic mental symptoms of Korsakoff's syndrome. Beside these were certain mental symptoms which pointed to alcoholism—namely, morbid jealousy and suspicions relating to the sexual functions and reproductive organs, marital relations, and maternal instinct; threatening or terrifying visual and auditory hallucinations, accompanied by delusions of being followed by policemen and detectives; also delusions connected with the deranged cutaneous and kinaesthetic sensibility caused by neuritis. Delusions of poisoning were not infrequent in both alcoholic and non-alcoholic cases, and it was possible that these delusions might be an insane interpretation of gastritis or other morbid conditions of the stomach. In most of the cases of psychosis occurring in patients the subjects of chronic alcoholism, morbid states of depression predominated and persisted, causing morbid apprehension and fear and tendency to suicide; in some cases there was persistent exaltation, lying loquacity, and a tendency to vulgar wit, rhyming, and inconsequential confabulation.

Other signs of mental impairment—such as loss of memory of recent events, personal illusions, loss of knowledge of time and place, and mental confusion—were usually present in varying degrees of intensity, and in typical cases of chronic alcoholism were generally associated with signs of neuritis—for example, tenderness of the limbs on deep pressure, absence of knee-jerks or sometimes increase of jerks, varying degrees of paresis or paralysis of the lower extremities, accompanied by varying degrees of cutaneous anaesthesia and analgesia. There was no loss of control over the sphincters unless there was a marked dementia. The more the cases exhibited during life these obvious neuritic signs, conforming to the cases met with in hospital practice, the more likely was there to be a well-marked cirrhosis of the liver, and the more likely was alcohol the effective cause of the insanity. The few cases of permanent alcoholic dementia which had died in Claybury Asylum, and to which he had previously referred, exhibited marked changes in the liver. The large number of females diagnosed as suffering with alcoholic insanity in those dying at Claybury were affected about the climacteric period of life; if there had been forthcoming positive evidence of alcohol having been an effective cause of the insanity, one would have expected more definite evidence in the organs of the body, and he could not help thinking that the more important cause of their admission to the asylum was the "change of life," which so often was associated in total abstainers and most temperate women with a mental break-down.

How did alcohol cause these changes in the brain and its functions? It might be argued that the progressive and continuous poisoning of the body with alcohol led to permanent changes in the organs, and induced thereby permanent disturbances of the biochemical changes incidental and essential to their normal vital functions, causing an autotoxaemia. Poisons circulating in the blood would find out the inherited *locus minoris resistentiae*, if there were one; the brain, the most complex and delicate mechanism of all, the one in which individuality and personality was shown in an infinite variety of ways by which it reacted to environment, was therefore the organ which was earliest affected.

Although no changes were discoverable microscopically in the brain of a great majority of cases of alcoholics, whether dying in hospitals or asylums, this did not prove changes had not taken place. In fact, what was a "habit" but some altered state of reaction to environment, conduct whereby the brain was impelled to satisfy a desire? and although their methods did not permit the demonstration of any physical or chemical change, yet by analogy they must presume a change had taken place.

Dr. Mott showed on the screen the principal changes which could be observed in the brain in cases of alcoholic dementia. There was not much wasting; there was some thickening of the membranes, especially over the frontal and central convolutions; the fissures were deeper than natural, and the convolutions smaller, especially in the regions mentioned. There was some excess of cerebro-spinal fluid, proportional to the wasting. The membranes stripped off without leaving erosions, and there was no granulation of the ependyma of the ventricles. These two conditions were very characteristic of general paralysis, and were very rarely absent. The cerebro-spinal fluid did not give the Wassermann reaction characteristic of a parasyphilitic affection. Microscopic examination showed by methods used for staining fibres a diminution of the superficial fibre systems of the cortex, and there was no marked increased vascularity. The cell destruction and distortion of the cortex was not marked, as in general paralysis. The most noteworthy change in

the cells was shown by the large Betz cells, which presented an appearance similar to those of the motor anterior horn cells of the spinal cord—namely, they were swollen. The Nissl granules were absent or diminished; if present, they were only found at the circumference of the swollen cell. The nucleus was very frequently displaced, and eccentric in position. There was, he thought, a parallelism between the absence of fibre-staining in the superficial cortex cerebri and the degree and permanence of the dementia. These were the only changes of importance he had found in the brain in the few cases of alcoholic dementia he had had the opportunity to examine. In one hospital case he found multiple minute haemorrhages, which he attributed to rupture of degenerated vessels, brought about by cerebral congestion owing to fatty degeneration and failure of the heart's action.

In an inquiry relating to heredity and insanity, he had lately interviewed several of the relieving officers who knew the histories of these pauper insane patients and their families, and one relieving officer of eleven years' experience in a very large parish volunteered this information:

> He did not know how the asylum authorities could possibly find such a large percentage of insanity due to alcoholic abuse. He referred to 420 cases of alleged lunatics to whom he had been called, and he stated that there were 20 chronic inebriates among these suffering with delirium tremens; these had been sent to the infirmary, and after a short period of time had been discharged. Among the remaining 400 cases who were lunatics and sent to the asylum, he did not find any cases where there was evidence of prolonged abuse of alcohol.

Without precise data this evidence was not to be taken as scientifically accurate, but he thought that it was likely to be more accurate than the untrustworthy evidence arrived at by sending out printed forms for relatives to fill up, as was the method upon which much of the data in asylum districts was built up.

Dr. ROBERT JONES said that he was responsible for the assertion, which Dr. Mott had urged should be restated, that "Intemperance in drink is responsible for more than 20 per cent. of all cases of insanity among the admissions" (to asylums). Statistics with regard to insanity varied, of course, with the personal equation of the individual medical officer who collected them. But his own experience of alcoholics in asylums had been considerable, and although he took it for granted that it was only a *façon de parler* on the part of Dr. Mott when he said incidentally that teetotalers were as numerous among the insane as those who took alcohol, he felt bound to contradict that statement absolutely. It was very rarely indeed that one came across a teetotaler in an asylum. He must defend the figures so far as they related to Claybury, which Dr. Mott had to some extent called in question. At Claybury he and his fellow medical officers were not content to send out inquiry forms and await the reply. They saw the friends of all the patients, and ascertained the conditions of life from which they had come and to which they would return. The asylum patient was very largely drawn from a floating population, any of whom were ready to drop into certifiable insanity, and in a great number of cases alcohol was the agent which precipitated into a lunatic the man or woman who had hitherto been living a comparatively useful and responsible life. It was their duty as a society not to lose sight of the fact that there were a multitude of unstable people in the world, and that the stimulus of alcohol might be sufficient to drive them into the ranks of the insane. The Claybury percentages were based upon a total of 12,653 cases. Out of this number of admissions to the asylum in seventeen years he elicited a history of alcoholism in 28 per cent. of the men and 14 per cent. of the women, making a mean percentage of 21. He placed side by side with these the statistics of other county asylums where the superintendents had furnished a summary of the various influences operating in insanity, and, taking a three-year basis, the percentage of admissions in which alcoholism was a factor was 28.6 for the men, 14.7 for the women, making a mean of 21.6, exactly corresponding to his own figures. Dr. Jones went on to declare that neurotic people might lay the flattering unction to their souls that it was neurotics who did the finest work of the world. It was neurotics—"quicksilver people"—who were also most susceptible to the precipitating influence of alcohol, and therefore they had the greater reason for abstaining altogether. In the latest Blue Book—the report for 1910 of the Commissioners in Lunacy—it was stated that alcoholism stood fourth among all the causes of insanity. At the back of the insanity lay inherited mental instability, defective physical organization, the climacteric in women, and the rest of a familiar list, but in a great number of these cases alcohol was the precipitating factor. He believed that alcoholism had a much greater influence than was generally supposed. In order of frequency it was probably the most common single factor among males. He admitted that when the remains came into the *post-mortem* room it was often difficult to realize its ravages, but they who were in constant association with the insane were satisfied that alcoholism was a very frequent cause of insanity. What was the psychological effect of alcohol? It was an elementary law that the latest acquired was the first to disappear. On analysing mind one first found cognition, and above cognition the subsequently acquired will. The effect of alcoholism was to weaken and degrade that will. In the report of the Royal Asylum of Inverness, it was stated that a larger and larger number of these people were characterized by doubt, hesitancy, and incapacity, and in that he thoroughly agreed. Education and encouragement must be the treatment in asylums, but when alcoholism affected the psycho-motor cells of brain workers, such as journalists and school teachers, it brought them down to a lower plane, and reconstruction to the original level was a practical impossibility.

After remarks by Dr. C. W. SALEEBY,

Dr. CLAUDE TAYLOR spoke of the numerous class of unstudied and unclassified cases which were dealt with in the workhouse infirmaries and never went on to the asylums. He believed that this class would furnish a vast amount of evidence which would go to correct to a large extent the conclusions that Dr. Mott had put before them as to the causation of insanity by alcohol. In his experience a great number of these cases were due to drink, though it was difficult to say whether alcoholism should be regarded as antecedent, coefficient, or cause. Doubtless many of the cases were from neurotic stock, and therefore had a tendency to become deranged. But large numbers dealt with in the Poor Law institutions did become suicidal or homicidal on the spur of a very little alcohol. The evidence of the patient himself as to the amount of alcohol taken, however, was most unreliable.

The PRESIDENT (Dr. Hyslop) disagreed with Dr. Saleeby in his statement that Dr. Mott had furnished the most condemnatory evidence against the report of the School of Eugenics. Nothing that Dr. Mott had said could be applied in that way, but he had given them most valuable information in the direction of delineating the problem that was before the country, particularly with regard to the difference between persons with a degenerate family history and those suffering from alcoholism *per se*. The speaker was always looking for those cases in which alcohol had been the sole factor. He had no doubt such cases existed, but they were rather phantom like, and on going more fully into the history one generally found evidence of some hereditary neurosis. The real lesson to be taken to heart was that the victim of any neurosis should refrain from touching alcohol, so that the practical result was the same as if alcohol had been arraigned as the single cause of the degeneracy. Alcohol invariably attacked the weakest system. In the majority of the instances in which disease of the liver had not occurred in the asylum it was probable that the alcohol had attacked the weaker system first, and the patient had gone into the asylum before the effects could have reached the liver. That was rather in favour of the School of Eugenics. The difference between the report of the School of Eugenics and Dr. Mott's thesis was that the one was put forward in a statistical manner, which was capable of extension, as they knew, and the other was on a scientific basis.

Dr. MOTT, in reply, said that it had been his desire to tackle the question impartially, and to bring before his audience the facts, leaving them to draw their own inferences. His observations did not controvert those of Professor Karl Pearson. If anything, they tended to support them. He had the greatest admiration for Professor Pearson's work, and, although he did not agree

with him, he knew that he was actuated by the most honourable and straightforward motives. He thought the mistake had arisen because Professor Pearson had drawn his results from alcoholics of a low grade who were probably innately better than the total abstainers who had got into that grade. With regard to the discussion, he thought the evidence brought forward went to show that alcoholism was responsible for a large number of admissions to asylums, but he still held that in the majority of cases alcohol was more in the nature of a coefficient than an actual cause. Having alluded to the difficulties of investigation in London, where the cases that ought to be examined were split up under the care of various institutions, infirmaries, hospitals, and asylums, he proceeded to differ with Dr. Jones in what the latter had said about cirrhosis of the liver. As with cirrhosis so with neurotic psychosis, one might say that, strictly speaking, it was not due to alcohol. There might be some microbic infection, but the fact remained that if the persons had not taken the alcohol they would not suffer from the neuritis or from the disease of the liver. He believed that alcohol allowed toxins to pass in from the alimentary canal, causing cirrhosis of the liver, and that the result was due to the absorption of these toxins rather than to the direct effect of the alcohol itself.

Election of Officers.

Previous to the discussion some business was transacted. The annual report of the society, read by the HONORARY SECRETARY, reviewed the work of the year and outlined possible future developments, including the establishment of research studentships. The TREASURER reported a balance in hand of £34. Dr. Hyslop was re-elected President, and the Vice-Presidents were re-elected, with the addition of the President of the British Medical Association. Dr. Claude Taylor was called to the office of Treasurer.

THE DAYLIGHT SAVING (?) BILL.

BY JOHN MILNE, F.R.S.,

SHIDE, ISLE OF WIGHT.

I WAS led to the consideration of time in consequence of work which involves, amongst other things, the translation of times given for the occurrence of an event in a distant country into Greenwich or English time. Years and years ago I learnt that astronomers, geographical societies, or cable companies of any nationality whatever could give me little help in carrying out these apparently simple operations. To translate Indian time into English time you had, and may still have, to refer to 49 pages of the closely-printed *Indian Telegraph Guide*. For certain varieties of Chinese time you must still refer to the hours of the cat, the dog, and other animals. American time is supposed to be perfection. The country is divided up into zones, 15 degrees apart, each of which is separated from its neighbour by one hour. For certain purposes this is sufficient, but there are State laws, and States are not divided from each other by a mere meridian. To translate the time used in certain Pacific islands it is not always a question of hours, but of days. In one island it may be Sunday, but on a neighbouring one it may be Monday. Ordinary people talk glibly about time, but about time as it is kept in the world they usually know but little.

To put myself in a better position with this question, in 1893, through the kindness of the Foreign, Colonial, and India Offices, I was enabled to make inquiries about local, standard, legal, railway, astronomical, and other kinds of time which were kept in all parts of the world where we had representatives. I learnt much, and have since seen and noticed how in country after country a definite time has been adopted, and a trend has been taken towards the adoption of a standard. For various reasons the standard chosen was that of this country—G.M.T., or Greenwich mean time. The other day France sacrificed nine minutes in order to have the same time as Great Britain, Holland, Belgium, Spain, Algeria, and other places. France did not do this to save daylight, but it was for the sake of commercial transactions and international relationships that she put herself in line with her neighbours. When Cape Colony made herself an exact two hours before Greenwich she adopted a time suitable to South Africa and easily comparable with that of other countries. To say that she took this action to save daylight is nonsense. People in South Africa, like those in Australia, want to know when cablegrams are dispatched, when contracts are completed, and they can do this best if they work in relationship to a standard.

It is now proposed to alter this standard, so that between the third Sunday in April and the third Sunday in September all our clocks shall be one hour fast. They will therefore show noon when it is really eleven, and show five when it is really only four.

Let us consider what this may mean in connexion with our "overseas" relationships, and then in relation to ourselves. Who will benefit and who will suffer?

Travellers, mails, and freight are now timed to reach the Continent at times which suit Continental arrangements, which have been adopted to fit in with British time. Inasmuch as these arrangements fall in line with those of European states in general, and then again with the arrangements of more distant countries, it is not likely that they will be altered to suit British eccentricity. The alternative is that the trains and steamer services of this country must suffer changes twice a year. But this threatened confusion is by no means the end of the trouble.

In our own country I will assume that there are millions of workmen who now get up at five o'clock to reach factories or works at six. As matters now stand, during the prescribed period of change each of these men rises twenty-seven times before the sun. When he has to get up at an imaginary five o'clock, which will be really four, he will have to do this 102 times. Thus the frequency of early morning darkness and morning cold will for the workman of Great Britain be increased fourfold. I have made no allowance here for dawn and twilight (cold and warmth), which, as everybody knows, are variable quantities.

Advocates of daylight saving who wilfully neglect to call attention to this fact are not good sportsmen. They might also call attention to the facts that ever since we have had a standard time the resident in the West of England always gets twenty or more minutes of afternoon sunlight than the man in the East, while the Scotsman gets in the summer months about an hour. So why all this hubbub? It is to give a few clerks in the South-east corner of England pleasant afternoons, to give to Devonshire and Scotland that which in a greater or less degree they already possess, and to disturb millions of households on cold, dark mornings.

It is a selfish, wicked, and ill-considered project, which, if carried out, will affect the nation with moral, financial, and physical trouble. If the master of the house has for more than three months of the year to get up at four, fumble about for matches, possibly light a fire, wake up a household, and go on a bike or a tram to his work, I can imagine that the mental strain involved would be such that his language and that of the household would excel that of Job.

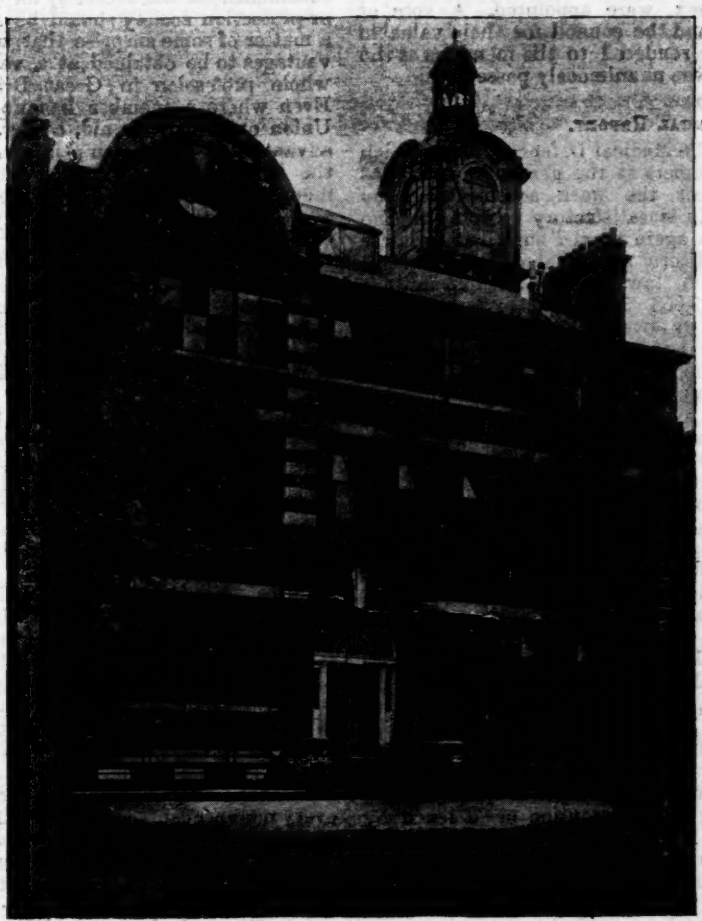
When in the street, too, his chances of accident or bronchial troubles, particularly when frosts are about, would be increased. On arrival at the factory or workshop this would have to be lighted up and warmed. Upon this point the employer would have something to say.

The worst feature, perhaps, because it will hit the clerk as well as the workman, would be the fact that twice a year habits would have to be altered. Now, habits *cannot* be trifled with. We may change them, but the change takes time. Meals at irregular times are bad for our system, and the shifting of the hours of work is bad for the work. Medical men are well acquainted with the results of experiments bearing on these points, the inference from which is that, should the bill come into force, for a certain period twice a year the efficiency of the worker would be somewhat damped.

Those who live in the South-east of England are to go home at four because it has been legally enacted that they can push on the hands of the clock and call it five, bask in the sun, play more tennis, more golf, have more rifle-shooting, gain more health, and all the rest of it, whilst the workmen in our industrial centres are to rise at four. It is a daylight-saving proposal for a minority, and a darkness-giving bill for the majority.

CANCER HOSPITAL RESEARCH INSTITUTE.

THE new Research Institute of the Cancer Hospital in Fulham Road was opened by the Duke of Connaught on May 23rd. This building, which stands detached from the hospital, contains ten separate laboratories, each excellently equipped for its purpose. The institute is a lofty building of three floors with a spacious basement. It measures 40 ft. from back to front and 60 ft. in width, and the height of the rooms on each of the floors is from 12 to 14 ft. The usual passages have been abolished, and the laboratories, which intercommunicate, open also directly on to the staircase around the central lift. The ground floor is devoted principally to administrative purposes. It contains a large reference room and library, still awaiting its volumes, the secretary's and director's offices, and, leading from the latter, the director's laboratory. This laboratory is to be devoted chiefly to the study of parasitology in its bacteriological and cytological aspects, and, like the other rooms, it illustrates the care for detail and the purposefulness with which the organization has been carried out. For example, the window, stretching along the whole of one side of the room, has narrow metal frames so as not to interfere with the light; a system of travelling electric lamps has been installed; the basins are fitted with telescopic plugs; the walls have rounded corners; the draining arrangements are on the latest scientific principles, and the cabinets have glass doors and sliding shelves. The various pipes for hot and cold water, gas, waste, and electric wires, are all differently coloured to indicate their separate purposes.



Exterior of the Institute.

On the first floor are the main research laboratories. These include a laboratory for comparative pathology, equipped with a kymograph and a Cambridge microtome for cutting large sections; a very large chemical laboratory, with fume cupboards in front of the window, central benches, an open drain, a Korting vacuum pump, and a hot chamber for drying tissues, which is kept at blood heat; a laboratory for physical measurements, equipped with photometers, thermostats, balances, and similar contrivances; and a serological laboratory, furnished with large and small centrifuges. The second floor is devoted wholly to experimental work, chiefly to the study of animal tissues, and includes an excellent physiological laboratory. Above these is the tower, fitted with a laboratory for special light experiments.

Other laboratories find a home in the basement. The apartment devoted to electro-radio-physics has not yet been fully equipped, but its excellent photographic dark room is in working order. It has an asphalted floor, and also an exhaust fan—the only piece of artificial ventilation in the building—while the light is trapped owing to the air being made to travel in the form of a wave. Another laboratory is occupied with preparatory chemistry, and is fitted with grinding mills, Buchner presses for extracting cell juices, combustion furnaces, and an apparatus for producing distilled water at the rate of 3½ gallons an hour at the cost of ½d. a gallon. Other incidentals of the basement are a room containing various sterilizers, a large carbon dioxide machine for refrigeration, with a cold store adjoining, a destructor or crematorium, a boiler house, an engineer's workshop, and a series of eight vaults devoted to various purposes, such as chemical and spirit storing, and the housing of a large centrifuge of 24 tons pressure. One of these vaults also forms an underground laboratory for working at an equable temperature.

Our representative was conducted over the building by Dr. Alexander Paine, the director, who pointed out that the institute was equipped for attacking the problem on both its experimental and its clinical side, and that not only could cancer research be undertaken but that work could be done upon tuberculosis, and, indeed, any kind of work in connexion with the investigation of disease.

At the opening ceremony Lord NORTHBROOK read an address in which he sketched the hospital's history and dwelt upon the patient research work which had proceeded side by side with the routine treatment. The new institute would afford accommodation for study in every branch of medical science bearing on the subject and was adequate for the most advanced investigation. He paid a tribute to Mr. Alexander Graham, the architect, and to Dr. Paine, the director, for the skill with which the building had been designed. The DUKE OF CONNAUGHT, in reply, said that he was associated with many hospitals in the metropolis, and took a very keen interest in their special institution and in their combat with a fell disease. A wonderful work had, he said, been performed within those walls during the last sixty years. It had not been performed without great difficulties, both from the monetary point of view and from that of the strenuous work demanded of the medical man. Many of those present had had relatives who had suffered from cancer, and all realized the importance of leaving no stone unturned not only to alleviate the individual case, but to fight the disease at its source. His Royal Highness then proceeded to the institute, the door of which he unlocked with a silver key. After he had made a tour of inspection the premises were thrown open to the general company.

DR. G. E. HERMAN will deliver the Bolingbroke Lecture, before the South-West London Medical Society, at the Bolingbroke Hospital on Friday, June 16th, at 8.45 p.m. The subject selected is *ante-partum* haemorrhage. All medical practitioners are invited to be present.

THE Congress of French-speaking Alienists and Neurologists will hold its annual meeting at Amiens in August next (1st to 4th). The following are the questions proposed for discussion: The different kinds of psychopathic pains, their significance and importance; tumours of the pituitary body; the value of the evidence given by lunatics in a court of law.

MEDICAL DEFENCE UNION.

The annual general meeting of the above society was held at the Grand Hotel, Brighton, on May 18th. The chair was taken by the President, Mr. Stamford Felce, who gave an address upon the disabilities of the profession, especially in relation to the proposed scheme of National Sickness Insurance of Mr. Lloyd George. The disadvantages of the suggested legislation and its interference with general practice of practitioners were dealt with fully, and a hope was expressed that strenuous and united resistance would be made to this scheme by the profession. The meeting accorded a unanimous vote of thanks to the president, and the question of the publicity of the address was left to the decision of the council. The report of the council was adopted and approved, and the usual formal and statutory resolutions were passed. An election for three members of the council took place, and Dr. Roche Lynch, Mr. Messiter, J.P., and Mr. R. F. Jowers, F.R.C.S., of Hove, Sussex, were appointed. A vote of thanks to the president and the council for their valuable and gratuitous services rendered to the members of the Medical Defence Union was unanimously passed.

Annual Report.

The annual report of the Medical Defence Union, which was presented to the members at the general meeting as reported above, embraces the work accomplished by the Council in 1910. It is satisfactory to note that the funds of the union have again proved sufficient to cover the very heavy expenditure necessitated by the legal costs in actions in the law courts—an expenditure which amounted to £2,663 19s. 9d., exceeding the amount paid in 1909 by over £1 000. The number of cases placed in the hands of the solicitors to the union was 183, and, of the total costs, £1,020 6s. 7d. was for "out-of-pocket" expenses. In 8 cases alone the costs were £1,600 12s. 3d., the average expenditure in point of law costs and disbursements being £200 1s. 6d. Two-thirds of the total legal costs were attributable to these 8 cases. The work undertaken by the union during the past year has been abnormally heavy. The geographical distribution of the cases dealt with by the solicitor is interesting. It appears from the legal report that 55 cases occurred in the metropolitan area, 109 in the provinces, 7 in Scotland, 2 in Ireland, and 10 in Wales.

Actions for alleged malpraxis are evidently not on the decrease, as it is shown that there were 49 in 1910, the next highest being in 1906, when the number was 41. It is clear, however, that a very large proportion of actions threatened are quashed as soon as the patients or their solicitors have knowledge that the union will defend, and it is in this way chiefly that the value of this organization is so specially shown. In libel and slander cases the union has been busy, 45 of such being undertaken either for prosecution or defence by the union's solicitors. The actual expenditure for the past fifteen years in law costs has been £22,728 8s. 8d.; ninety actions alone within this period cost £12,441 4s. 1d., or an average of £138 4s. 8d. for each case. As the solicitor, Mr. Hempson, points out in his report, "access to these figures will afford to members some idea of the heavy nature of the litigation which has been undertaken and accomplished by the union." The value of co-operation was never better illustrated than by this report. Had any one of the medical practitioners been required personally to pay £200 in defence of an action brought against him, it would have brought prominently to his notice the value of the union. The progress of the union has been steady and persistent, and the work accomplished each year is a benefit not only to the members, but indirectly to the whole profession.

As pointed out in the report of the Council, the Medical Act would be practically a dead letter without the union, as it is the only society which puts the Act into force against unqualified practice. Inefficient as the Medical Act is, it would be detrimental to the interests of the public and the medical profession were the penal clauses never to be put in action; and it is greatly to the credit of the Medical Defence Union that, where possible, prosecutions are undertaken and conducted with success; and even on this ground alone it should be supported by medical practitioners. It is chiefly, however, with the work of defence that the union has made its name, and the last year has again been prolific with successful cases.

It is quite clear that both would-be litigants and speculative solicitors are chary of entering into contest with the union, and that a very large proportion of actions threatened fall to the ground the moment it is decided that the society will defend. In one case quoted by Mr. Hempson a threatening letter was received by a member; but on hearing that the union would defend the reply was that the would-be litigant was extremely disappointed "to find that the practitioner he desired to attack was a member, and that he would not proceed further." In another case, after offer was made by the union to accept service of a threatened writ through their solicitor, no writ was issued; and later it appeared that the solicitor of the plaintiff had stated, "The Medical Defence Union are far too strong for us to fight—we must lose." With these considerations the necessity for joining a medical defence or protection society should be apparent to all; and it is a matter of some surprise that, with all the manifest advantages to be obtained at a very small annual cost, the whole profession in Great Britain does not subscribe. Even where a member has no occasion to consult the Union or to call for aid, advice, or assistance, the moral advantage of membership is great; and there is always the satisfaction of knowing that by subscribing each member is helping his less fortunate neighbour. The date at which actual assistance may be required cannot be estimated; it may not be to-day; it may quite possibly be to-morrow; no man can actually feel that he is secure from molestation, however capable he may be in the treatment of his cases. An hysterical woman amongst his patients, pauper or wealthy, may at any moment make it necessary for him to defend his professional repute or honour in the law courts; if he be a member of the union the success of his action is more certain, and certainly less expensive, than if he had failed to utilize the advantages which are his for the asking. He may have performed a brilliant operation of grave character which has undoubtedly saved his patient's life, yet if some little accident, such as a scald from a hot-water bottle, or something similar has occurred, the value of his services is forgotten and it is sought to mulct him in damages for the error of a nurse or attendant, and he may be called upon to defend an action in which, although the verdict may be in his favour, he will have to pay heavy costs incurred in his defence without the slightest possibility of recovery of such from the plaintiff, who is, in many cases, a person in an impecunious position. In respect of this the council states that many thousands of pounds are owing to the union for costs awarded, but that there is no chance of obtaining even a fraction of such. The arrangements which the council has entered into with the Yorkshire Insurance Company, by which for a small annual premium every member can be insured against the costs and damages accorded in lost actions, is an excellent one; and, as it is purely voluntary, no objection can be taken to it even by the most critical. The scope of the work of the union is varied, and practically can be extended to touch any matter of doubt or difficulty in the working of daily practice. The experience which the executive of the union has now gained by years makes the aid, advice, and assistance to be obtained most valuable, and the medical profession can with safety and advantage to itself accept the benefits provided. It is no slight claim to the esteem of the profession to be able to record, as the solicitor does in this report, that in no single instance has an action for libel or slander been lost where proceedings have been taken on behalf of a member in vindication of his professional honour and reputation; and we note with satisfaction the opinion expressed by the solicitor when he states that this result "constitutes a record not to be equalled, and certainly not surpassed, by any association carrying on work similar to that which the union conducts." The work of the union is no longer an experiment, it is a necessity; and carried on, as it is, by men of great experience, and judged by its excellent results, we recommend all practitioners to secure the benefits which are at their call. We have pleasure in congratulating the council and the executive upon the satisfactory report and record of work admirably carried out.

LITERARY NOTES.

DR. J. B. HURRY, who is well known as the author of an excellent book on Reading Abbey, is presenting the town of Reading with memorials of the first and last Abbots of Reading, which will be placed in the Chapter House of the Abbey Ruins. For the following details we are indebted to the *Reading Standard*: The two memorials are carved each out of a single slab of blue Forest of Dean stone, measuring 6 ft. by 5 ft. 6 in., and represent in bold relief scenes from the lives of the first and last Abbots. Mr. W. Ravenscroft, F.S.A., F.R.I.B.A., designed the architectural portions of the memorials, and Mr. W. S. Frith, sculptor, the scenes, the whole of the work being executed by Mr. Frith. Abbot Hugh de Boves is represented as receiving the insignia of his office at the hands of King Henry Beauclerc, the design being based on a rough sketch of a similar event, probably by Matthew of Paris. King Henry is accompanied by men-at-arms, while the Abbot is supported by some of his tonsured brethren, who are bearing a reliquary in honour of so auspicious an occasion. This memorial bears the arms of Reading Abbey, and also a panel with a *bœuf passant*, a rebus on the name of *Boves*. The following inscription is placed at the base of the tablet:

TO THE MEMORY OF HUGH DE BOVES,
FIRST ABBOT OF READING (A.D. 1123-1130),
AFTERWARDS ARCHBISHOP OF ROUEN
(1130-1160).
'AMOR PLEBIS, TREMOR POTENTIUM,
CLARUS AVIS, CLARUS STUDIIS, RECREATOR
EGENTIUM.'

Abbot Hugh Faringdon, with a rope round his neck, stands at the foot of the gallows in the act of addressing the burghers of Reading, who have flocked to witness the last scene prior to the dissolution of Reading Abbey. Close by are the two monastic brethren who shared his fate. The background is filled by a crowd of soldiers and burghers. Two coats of arms are carved on this memorial—namely, that of Reading Abbey and the personal arms of Hugh Faringdon. The inscription at the foot reads as follows:

TO THE MEMORY OF HUGH COOK FARINGDON,
LAST ABBOT OF READING (1520-1539),
WHO REFUSED TO SURRENDER HIS ABBEY
TO KING HENRY VIII, AND DIED ON
THE GALLOWS.
'IN TE, DOMINE, SPERAVI.'

Percivall Pott says, speaking of quackery:

The desire of health and ease, like that of money, seems to put all understandings on a level. The avaricious are duped by every bubble, the lame and unhealthy by every quack. Each party resigns his understanding, swallows greedily, and, for a time, believes implicitly, the most groundless, ill-founded, and delusory promises; and nothing but loss or disappointment ever produces conviction.

That quacks sometimes succeed when a rational practitioner fails, need not be denied. The reason almost invariably is that the quack plays without scruple on the hopes of the sufferer, and thus inspires him with what Charcot calls the faith that heals. A good illustration of the efficacy of the quack's liberal use of suggestion is given by the author of a book entitled *Physic and Physicians* (London, 1839). He says:

Within a very short period flourished, in the Isle of Wight, a man who was formerly mate of a ship. This fellow began his career at Lymington; and, happily for the inhabitants of Cowes, continued it there. I say "happily," for the credulous came to him in droves, and all the lodgings in the town were occupied. He was a blessing to the owners of boats and packets and the public-houses there. This wonderful man pretended to cure the sick, the lame, the halt, and the blind. The applications were so many that he formed a committee, by whom the patients were to be introduced twelve per diem. It must be confessed that his mode of healing the lame and the palsied was ingenious. He broke their crutches and hung them up in his hall of audience as trophies of his skill! Some of the patients were cured by being frightened. At length the bubble burst. People were obliged to buy new crutches; others, dying, had no necessity for such purchase; and the rest had their excursion for nothing.

This story may be taken as a typical example of the quack's career.

The short account of Perkins, whose "metallic tractors" inflamed the imagination of so many people at the beginning of the last century, given in the JOURNAL of May 27th, may be supplemented by the following extract from a paper by Sir Benjamin Brodie (*Works*, collected and arranged by Caesar Hawkins, vol. i):

Persons of the highest station bore testimony to the wonders worked by the tractors. Among the vouchers, says Perkins, will be found eight professors in four universities in the various branches, as follows: Three of natural philosophy, four of medicine, one of natural history. To these may be added nineteen physicians, seventeen surgeons, and twenty clergymen, of whom ten are doctors of divinity, and many others of equal respectability. Perkinism advanced rapidly in reputation everywhere, but the chief seat of its triumph seems to have been in Bath, which at that period, before the road was opened to the German spas, was resorted to by a vast number of invalids of every description, and what was more to the purpose, by a host of *malades imaginaires* also. Nor was this all. It was thought, and not without reason, that if the principle were good, it might be extended further; and many grave and sober-minded gentlemen wore pieces of loadstone suspended round the neck for the purpose of preventing or curing the gout. Similar experiments to those of Haygarth were carried out by Richard Smith, Surgeon to the Bristol Infirmary, and they were witnessed by a great number of persons. The results were not less remarkable than those which followed the use of the real Perkinian instruments. There was only one patient among those subjected to the operation who did not declare that he experienced from it more or less benefit, and in him the effect of it was greatly to augment his sufferings, so that he would on no account allow it to be repeated. He said that the tractors had tormented him out of one night's rest, and that they should do so no more! This exposure was a death blow to Perkinism. Even in Bath the following year produced only a single case of supposed cure from the tractors, and in the course of two or three years the delusion had vanished in other places.

Writing on the suppression of quackery in the *Quarterly Review* in 1842, Sir Benjamin Brodie says:

The Provincial Medical Association has a committee on quackery, who make an annual report on the subject, and they would urge Parliament to interfere for the purpose of suppressing it with the strong hand of the law. But indeed we do not agree with them in the views which they have taken, and we shall, in conclusion, briefly state our reasons for this difference of opinion:

First. We are convinced that the thing is impracticable. It may be made penal for a man to call himself a physician or surgeon, or apothecary, who has not obtained a licence; but how is he to be prevented from giving advice, and medicine too, under the name of botanist, hygeist, or homoeopathist? Or he may put Doctor before his name on the door, and say, probably with truth, "I am a Doctor, for I purchased the degree of Doctor of Philosophy for five pounds at Heidelberg." Moreover, the experiment has already been made, and without success. The College of Physicians of London are armed by ther charter and Acts of Parliament with ample powers for the purpose, but they long since abandoned the exercise of them in despair; and in France, where the legislature have done all that they could do to suppress it, quackery flourishes as much as in any country in the world.

But, secondly, even if the suppression of unlicensed practitioners were practicable, we are far from being satisfied that it would be either proper or expedient. If the art of healing had attained perfection, if physicians and surgeons could cure all those who apply to them, we grant that the case would be otherwise; but as matters now stand, would not such a proceeding be a very tyrannical interference with the right of private judgement? Let us see how such a system would operate in a particular instance. A patient labours under an incurable disease. His case is hopeless. His medical attendant complains in a court of justice, or some one complains for him, that the patient has placed himself under the care of an unlicensed practitioner, who has never studied medicine, who treats all who consult him with the same remedies, and believes that most of the diseases to which mankind are subject arises from cows eating buttercups; and therefore he requires that the interloper should be punished. But it turns out that the remedies which this individual administers are innocent; and as to the theory of buttercups, it is as good as Cullen's theory of fever, and it can do no harm. It is a comfort to the patient to try this new scheme, and wherefore should he be prevented from doing so?

This passage is interesting in several ways. In the first place we see the British Medical Association under its original name striving for medical reform as far back as 1842. In the second we learn that the drastic powers conferred on the Royal College of Physicians of London by their charter had long been allowed to lapse; this is important to remember in view of the fact that these powers have lately been treated in some quarters as still operative. In reality they are as dead as Henry VIII, who gave the college its charter. Brodie's opinion as to the expediency of prohibiting unlicensed practice has now

only a historical interest. But although we live under the new dispensation of Medical Acts, quackery flourishes just as rankly as before.

In Bransby Cooper's *Life* of his famous uncle (London, 1843, vol. 2, p. 177) it is stated that Sir Astley Cooper's name was often used by other practitioners and very largely by quacks. Spurious certificates were occasionally brought before the notice of the public as if under his authority. The vendors of secret medicines did not fail to take the opportunity of connecting his name with some of the articles advertised by them for sale. In these instances the employers of the deception usually attempted to screen themselves from punishment by substituting the Christian name of Ashley for Astley. Cooper himself never considered it worth the trouble to take any steps to expose the contrivers of these frauds, but used to observe: "It is of all things what they most desire that I should bring an action against them, as it would be the best way of advertising the pretended specifics of these rascals." If he happened to come into contact with any of these persons he never exhibited hauteur, but either ironically inquired about the success of their secret remedies, or made some of his usual jocose remarks, as if it were not a matter of sufficient importance for him to allow it to disturb his temper. Bransby Cooper relates, on the authority of Travers, that on one occasion Astley Cooper was sent for by Dr. G., an advertising quack in Shoreditch, whose window announced in capital letters, "The Universal Remedy Under God." Before examining the injury Cooper began to banter him, suggesting a trial of The Universal Remedy. "Come, come, Dr. Cooper," replied G., "*this* is a serious affair. This is no matter for joking!"

CONGRESS ON THE PREVENTION OF DESTITUTION.

THE first sittings of the National Conference on the Prevention of Destitution were held last week at Caxton Hall, Westminster, and were attended by representatives of municipalities and other local governing bodies in all parts of the country. Sectional meetings were held during the four days of the conference, and at these problems of juvenile employment, medical inspection and treatment of school children, the various social and economic evils resulting from mental deficiency, and questions of improved administration of municipal services were discussed, generally speaking, pointedly and with moderation.

The presidents of the various sections were: Public Health, Sir T. Clifford Allbutt, K.C.B.; Education, Professor M. E. Sadler; Unemployment, Sir Alfred Mond, M.P.; Mental Deficiency, Sir William Chance; Legal and Financial, Mr. Justice Phillimore. The general honorary secretaries were Mr. J. W. Hills and Mr. R. V. Harcourt, M.P. An official report of the whole of the proceedings of the conference will be obtainable later on.

On Tuesday, May 30th, the opening day, a joint meeting of the Education and Public Health sections was devoted to a discussion on the medical inspection and treatment of school children. Mr. HENRY HOBHOUSE, dealing with the administrative aspects, attributed much of the reluctance of local authorities to provide treatment to the absence of substantial grants from the national exchequer. Dr. E. W. HOPE, Medical Officer of Health, Liverpool, and Dr. A. A. MUSSEN, Assistant Medical Officer of Health for the same city, contributed a paper on the practical working of inspection, mentioning that in Liverpool it had been found best to associate this work with the public health department rather than the education department. Dr. LEWIS WILLIAMS, of Bradford, described the work of the school clinic there, and Mr. A. W. GANT, who gave an account of the municipal dental clinic at Cambridge, said that over 90 per cent. of the elementary school children had been found to have traces of caries in their teeth, but through the work in the clinic 70 per cent. of the permanent dentures had been freed from caries. Dr. LAURISTON SHAW devoted a paper to an argument in favour of school medical treatment by general practitioners, on the ground that they could carry their influence into the home and educate the parents in the proper care of the children's health. The work, he said, was unsuited to an army of whole-time officers; it needed wide knowledge of all diseases and patients rather than an exhaustive study of a limited branch of medicine or surgery. A general discussion revealed some difference of opinion as to what was being accomplished in medical treatment in rural districts. School clinics were generally approved.

The Mental Deficiency Section discussed the relation of heredity to destitution. Dr. F. W. MOTT, F.R.S., Pathologist to the London County Council Asylums, advanced the propositions: That (*a*) insanity was the cause of destitution, from the fact that feeble-minded and epileptic as well as insane children were liable to be born to parents who were insane themselves; (*b*) destitution might induce insanity in certain temperamental conditions. Dr. A. F. TREDGOLD said that slum life had very little to do with the causation of mental defect, which was as common amongst the well-to-do as amongst the poor, and more prevalent in rural than in urban districts. He condemned the unrestricted propagation of degenerates.

The treatment of tuberculosis occupied the attention of the Public Health Section on Wednesday, when sanatoriums, compulsory notification, and the domiciliary treatment of tuberculosis were amongst the topics discussed. The Mental Deficiency Section considered the relations of crime and mental defect, and in an opening address Sir WM. CHANCE pointed to the advance made in the care of lunatics as one of the most remarkable signs of progress during the Victorian era.

Insurance Bill.

On Thursday afternoon the Relation of Sickness and Invalidity Insurance to Public Health was discussed in the Public Health Section. Mr. CHRISTOPHER TURNER read a paper on the German System. He combated the idea that administration of insurance through the public health services would prove extravagant. It would be easier, in fact, to compel those able to pay for services rendered to do so. The task of the sanitary authority would be greatly lessened by the direct and indirect assistance of invalidity insurance. The vast and ever-accumulating capital would be used to raise the general standard of health amongst the poor.

Dr. R. J. COLLIE (Medical Examiner to the London County Council) dealt with the pertinent question of malingering, discussing states of mind which might lead people honestly to believe they were ill when they were not. People were victimized by their unstable nervous systems; too often they made no stand against introspection. The prevention of malingering might be summed up in the financial independence of the medical attendant and in repeated periodical independent medical supervision.

Dr. R. A. LYSTER (M.O.H. Hampshire) urged the appointment of a special committee by the county councils as the best method of securing the most efficient treatment of the insured. The committee could be assisted by a small local committee, on which medical practitioners, insured persons, and employers should serve.

Mr. H. B. LEES-SMITH, M.P., discussed the weakness of the Insurance Bill as regards Post Office contributors. Unless there was a supplementary grant from the State, the contributions would be insufficient, and those who needed assistance most would not receive it. The proposal for the establishment of a new health authority was reactionary and would have to be repealed when Poor Law reform was undertaken. The new committees should be statutory committees of the county or borough councils.

The unification of public medical services was the principal subject of discussion at the concluding session on Friday. During the conference visits were paid to labour colonies, infirmaries, school clinics, schools for mothers, etc., and the delegates were entertained at various social functions.

THE Russian Government is, it is stated, trying to organize an international committee for the scientific study of alcoholism. For that purpose it has appointed an official representative who has instructions to enlist the interest of every country in Europe and America in the scheme.

A BILL making cremation optional in Prussia was read a third time in the Lower House of the Prussian Diet on May 20th by a majority of 1. The entire Left, the Free Conservatives, and a small number of Conservatives recorded 156 votes in favour of the bill; the whole Centre and the majority of the Conservatives, making a total of 155, voted against it.

SCIENCE NOTES.

THE innate desire for freedom displayed by wild animals in captivity is instanced by many a story, but it is seldom we hear such a charming tale as M. Millot has to tell in *La Nature* (March 11th). He relates the romantic story of the incarceration of a tiny harvest mouse in the depths of a glass bottle, and the ingenious device whereby the little prisoner succeeded in breaking its confinement. The harvest mouse is one of the smallest and most delicately graceful of all living mammals, and it is so light that it can ascend and devour an ear of corn without bending the stalk. Its agile movements are assisted by a surprisingly prehensile tail. The little creature which was entrusted to M. Millot's care was tended as devotedly and made as comfortable in its glass prison as human care could contrive. It was given materials for a house which it fashioned after the manner of its kind, and it appeared perfectly happy and contented in its new abode. One day a visitor unthinkingly passed a thread through the canvas covering the top of the bottle. This hung down only a short distance, but was within reach of one of the straws in the bottle. The mouse was not slow to perceive this nor long in endeavouring to profit by it. Climbing to the very pinnacle of the straw and hanging on by little more than its tail, it essayed to reach the thread; very soon it had a grip of it, and was promptly at the top of the bottle, where its sharp teeth began to work their way through the canvas. At this point its gaoler intervened and rudely consigned it to the depths once more. As a consolation it was given some stalks of corn, which appeared temporarily to appease its thirst for liberty. Not long afterwards, however, it was noticed to be manipulating these stalks, very dextrously piling them up about and on top of its nest, the longest sticking up into the air. Its object was not suspected until one day the prison was found empty. The mouse had used the stalks to gain the top, and so had succeeded in escaping. Sad to say, the ingenious animal was recaptured and returned to durance vile. It made no further efforts to escape; it appeared to have lost hope, and it seemed resolved to bear its captivity in a spirit of philosophic patience.

It is well known that certain plants bear much simpler leaves at first than in later life, and usually the transitional changes are gradual. It is not infrequently found, too, that the primary leaves of one species bear some resemblance to the adult leaves of another species more or less closely allied. By many botanists this has been regarded as an evolutionary process akin to embryonic recapitulation of ancestral characters, and it has been maintained that the primary leaves represent the structure of the adult leaves of some ancestral form. This opinion has received some confirmation from observations made by Dufour.[1] He has studied some anemones, and has found that their leaves present a gradation of complexity which leads him to suggest that although they do not necessarily represent successive steges in lineal descent, they show obvious evidence of being derived from a common ancestor with simpler leaves. From a general view of the matter he comes to the conclusion that plants possessing complex leaves from the outset are higher in the evolutionary scale than those which first bear simpler primary leaves, and that a careful comparative study of these leaf forms cannot fail to throw light on the affinity of species.

MOTOR CARS FOR MEDICAL MEN.

THE Continental Tyre and Rubber Company have issued a pamphlet, entitled *How Can I Reduce My Tyre Bill?* containing articles on correct air pressures, how to gauge loads for front or rear axles, on the care of tyres generally, and on repairs. The company offers to forward a copy to any interested motorist. The address of the company has been changed, and is now Thurloe Place, London, S.W., close to Brompton Tube Station.

Messrs. S. F. Edge, Limited, 14, New Burlington Street, London, W., have issued a new catalogue of motor accessories, every article in which, it is stated, has been subjected to the most severe tests, under the hardest conditions, and has only been adopted after the firm has been thoroughly satisfied with its behaviour under road conditions. The firm offers to send a copy to any reader who might be interested to receive it. The catalogue seems to include every kind of accessory from head lamps to flower vases.

[1] *Rev. gén. bot.*, xxii, p. 369.

BRITISH MEDICAL BENEVOLENT FUND.

AT the May meeting of the above fund 18 cases were considered by the committee, and grants amounting to £144 made to 14 of the applicants. Appended is an abstract of the cases relieved.

1. Daughter, aged 61, of late F.R.C.S. Has maintained herself for 35 years by nursing, but small savings have been spent in assisting relations, and she is now obliged to resign her post on account of ill health. Voted £12.
2. Widow, aged 62, of L.F.P.S.Glas. Quite unprovided for at husband's death; endeavours to support herself and a daughter in feeble health by selling sweets on commission. Relieved three times, £48. Voted £10.
3. Widow, aged 62, of M.R.C.S. Dependent on letting lodgings and slight help from a son. Relieved five times, £70. Voted £10.
4. Widow, aged 50, of M.R.C.S., L.S.A. Lives rent free as a caretaker, and earns a little by needlework. Relieved nine times, £95. Voted £9.
5. Daughter, aged 56, of late M.R.C.S. Income £15 a year, and sight very bad. Voted £5.
6. Widow, aged 53, of M.R.C.S. Assisted her husband during a period of ill health, and supported herself and son many years after his death by taking mental cases, but has recently been unable to obtain any, and is consequently in temporary difficulties. Voted £10.
7. Widow, aged 53, of M.R.C.S., L.R.C.P. Has just enough to exist on herself, but asks for help on account of the unavoidable expenses of a daughter's illness. Voted £5.
8. Widow, aged 51, of M.B., C.M.Glasg. Was moderately provided for at husband's death a few years ago, but lost most of her capital through the defalcations of a solicitor. Tries to support herself by taking a resident patient. Voted £10.
9. Widow, aged 46, of L.R.C.P., L.R.C.S.Edin. Husband's savings exhausted by a five years' illness ending in death, and the proceeds of his insurance policy entirely lost through the failure of a bank. Four children, barely self-supporting. Takes boarders, but at present only has one, and is unavoidably in arrears with her rent. Voted £10.
10. M.B., C.M.Glasg., aged 40. Spent all his capital in an unsuccessful endeavour to establish a practice in Scotland, and is now quite incapacitated by phthisis. Has several young children. Voted £18.
11. L.R.C.P., L.R.C.S.Edin., aged 51. Used to have a flourishing practice, but was obliged to have one eye enucleated, and is now totally blind in the other. Only income is derived from boarders. Five children, aged 16 to 11. Relieved three times, £54. Voted £18.
12. Daughter, aged 56, of L.F.P.S.Glas. Lives with a sister rent free in a house which belonged to the father, and receives £10 a year from the Scottish Indigent Gentlewomen's Fund. Relieved four times. £48. Voted £12.
13. Widow, aged 57, of M.R.C.S., L.R.C.P. Only provision a small annuity, and has been obliged to incur heavy expenses on account of a chronic complaint. Two children, aged 16 and 14. Relieved seven times, £89. Voted £5.
14. Widow, aged 55, of L.R.C.P.Edin. Quite unprovided for at husband's death a few years ago and dependent on a son earning a small weekly wage. Relieved once, £10. Voted £10.

Contributions may be sent to the honorary treasurer Dr. Samuel West, 15, Wimpole Street, London, W.

AT the annual meeting of the Invalid Children's Aid Association the Archdeacon of St. Albans, in moving the adoption of the report, said that he had read it through twice and was struck by the soundness of the methods the association employed in its work, and by the thoroughness of its co-operation with other bodies, such as boards of guardians, hospitals, and school managers. Mr. Edmund Owen also dwelt on the unobtrusive thoroughness of the work, and compared present-day methods with those followed when he first began to practise, and when there were no such societies as the Invalid Children's Aid Association to fall back on for advice and help. The address of the society is 69, Denison House, Vauxhall Bridge Road, S.W.

On May 9th the Prime Minister of Spain, Señor Canalejas, introduced into the Cortes a scheme for the organization of the public health services. It provides for the regulation and co-ordination of the sanitary administrations, central, provincial, and municipal, and for the regulation of veterinary practice, pharmaceutical practice, and the working of watering and thermal stations. Tuberculosis is included in the list of notifiable diseases. The notification must be made by the doctor in charge of the case, and by the head of the family or his substitute in case of absence (employers, hotel managers, directors of hospitals, etc.), under penalty of a fine amounting from 50 to 500 pesetas (£2 to £20). Widows and orphans of medical officers or sanitary inspectors who succumb to epidemic disease contracted in the service are to be awarded pensions in proportion to the salary of the deceased.

British Medical Journal.

SATURDAY, JUNE 10TH, 1911.

THE PROVISION OF SANATORIUMS AND THE ENDOWMENT OF RESEARCH.

THE proposal of the Government to allot large capital sums to the building of sanatoriums brings the whole question of sanatorium treatment into the forefront of practical politics, and it is greatly to be desired that the public mind should be disabused of some of the fictions now associated with it.

A warning note was sounded by Mr. Balfour, in a recent debate, indicating the views now very generally held by those best qualified to judge as to the powers and limitations of sanatorium treatment. He made no secret of the fact that at best it is but a half measure, and that any real advance towards the suppression of tuberculous disease of the lungs can only be looked for as a result of further scientific research. The Chancellor of the Exchequer, in his reply, made it clear that he and his advisers were alive to the force of these arguments, and he pointed out that provision was made for the endowment of research, even though only as a secondary object. The erection of sanatoriums for the treatment of many thousands of consumptives by skilled observers may, in the Chancellor's opinion, lead to the discovery of the long-sought cure. But the fact has apparently been disregarded that skilled observations of this kind have been persistently made in all civilized countries during the last half-century. It is not at the bedside that the chief advance has been made. The work of Koch and of his followers, which has added so greatly to knowledge of the disease and its treatment, was done in the laboratory, and not in the wards; and it is to laboratory research, properly endowed and directed, that we must look for further enlightenment. The chest hospitals and sanatoriums have applied the knowledge provided by the schools of research, but they can do no more.

Scientific research and experimentation on animals susceptible to the infection have taught us that the natural forces of the human body can overcome the growth of certain microscopic organisms, such as the tubercle bacillus, if these natural forces are maintained in their fullest working order. But in order to maintain this high standard of health, the patient who has become the host of the tubercle bacillus must live an ideally hygienic life, and this, in most cases, he can do only if he gives up his whole time to it. By entering a sanatorium he places himself under scientific direction, and leads the kind of life that may be prescribed for him. Sanatorium treatment implies compulsory hygiene. The patient is forced to do those things which he ought to do and to leave undone those things which he ought not to do. If his natural powers of recovery are then unequal to the contest with his microscopic enemy, the sanatorium can do no more. The disease progresses, more slowly perhaps than it otherwise might, but still it progresses. Hence the necessity so often urged and so seldom regarded of adopting the treatment at the earliest possible moment.

The recently published report of the Charity Organization Society, upon which we commented in our issue of May 13th, goes to prove that at the present time the proportion of patients found to be fit for work for a long time after leaving their sanatoriums stands at 53 per cent. Doubtless this proportion would be higher if all cases were treated at the outset, but even if a much higher percentage could be achieved, the ultimate stamping out of the disease would still remain afar off. To use Mr. Balfour's words, it is only by "giving expert medical authorities the power of carrying on investigations" that an advance towards extinction can be hoped for.

Mr. Lloyd George justifies the proposed large expenditure on buildings by the dictum that the money will not be thrown away, whatever happens. This, however, must largely depend upon the way in which the money is spent. A building which is to last for many years, without considerable cost for repair, cannot be built for £100 a bed, although the Chancellor appears to have been advised that "quite good buildings" can be erected for that sum. In some country sanatoriums it has been found possible to put up slender shanties of wood and light iron for an even smaller figure, but the necessary quarters for the administrative, medical, and nursing staff have brought the whole cost per bed to a much larger sum. Many extravagant statements on the part of enthusiasts have hitherto been allowed to pass with only some good-humoured expressions of doubt, not only as to the result, but also as to the cost of sanatorium treatment. The subject has now to be faced in earnest, and it is well that hard facts should take precedence of vague generalities.

That the leader of the Opposition and the spokesman of the Government should be in cordial agreement upon the principles of a proposal of this magnitude is as notable as it is rare in Parliamentary annals, but we sincerely trust that the valuable criticism of the former will carry due weight, and that a proper balance will be held between the provisions made for prevention and for cure respectively.

The progress of consumption may be checked by sanatorium treatment, but research alone can point the way to its prevention.

PROGRESS OF PARASITOLOGY.

IN a review of recent progress in parasitology,[1] Professor H. B. Ward gives a succinct and interesting account of the chief work done and the most valuable results attained during the past three years. The increasing attention which is being paid to this subject is evidenced by the long list of important contributions which have appeared during that short period. Perhaps the chief stimulus towards this highly desirable result has been the recognition of the widespread relation of parasites to disease, more especially in tropical and subtropical countries. There has ensued a much more intensive study of human parasites, which has provided a wealth of discoveries; but Professor Ward is careful to emphasize a point, very apt to be forgotten, that, although "those papers must be regarded as most valuable which present results obtained from a study of the

[1] *Trans. Amer. Micr. Soc.*, 1910, December.

human species . . . yet it is evident on a moment's thought that comparative studies are as indispensable for a thorough understanding of the field of medical zoology as they are in other portions of the biological field." He refers to the increasing number of universities and colleges which are instituting courses in parasitology, protozoology, etc., and to the attention which animal parasites and animal carriers of disease are receiving from medical journals. While admitting that much of this activity owes its origin to the recognition of the scientific value of the observations made, he considers that in the main it is due to the increased importance, commercially, of tropical countries and peoples. It is doubtful, he thinks, whether sleeping sickness would have demanded as widespread attention or as strenuous efforts for its suppression had it not been a grave commercial danger to the nations developing colonial possessions in Africa. Reference is made to the sleeping sickness commissions instituted by France, Germany, the Royal Society, and the Sudan Government, as well as to the establishment of the Sleeping Sickness Bureau in London.

The Commission for the Suppression of Ankylostomiasis in Porto Rico came to an end in 1909 for lack of funds. The beneficial nature of its work may be judged by the fact that the deaths from anaemia fell from 12,000 to less than 2,000 in seven years. A similar commission, on a much more extensive scale, has been instituted in the United States, and has already done much valuable prophylactic work. The foundation in 1907 of the Liverpool *Annals of Tropical Medicine and Parasitology*, and a year later of *Parasitology* as a supplement to the *Journal of Hygiene*, has provided a welcome outlet to workers in this country. Mention must also be made of the *Index Catalog of Medical and Veterinary Zoology*, edited by Stiles and Hassall, and published by the U.S. Department of Agriculture. The printing of this work was begun in 1902, and it constitutes the greatest bibliographic effort which has ever been undertaken in this subject. Quite a crop, too, of special textbooks on parasitology—the majority of them in French—has sprung up during the past two or three years. More elaborate works on protozoology have been published by Calkins in America and Doflein in Germany.

Reference here to the numerous individual original contributions can only be very brief. In protozoology considerable attention has been paid to the parasitic amoebae. The earlier view of Schaudinn that there are at least two human species—one pathogenic, the other non-pathogenic—has been confirmed and extended by Craig. A number of other forms have been added, and a fair measure of success has attended efforts at artificial cultivation of these parasites. Investigations with regard to trypanosomes and spirochaetes have been extremely numerous, and as the most important of these have already received ample notice in this JOURNAL it is needless to re-enumerate them. The discovery of a new human flagellate, *Schizotrypanum*, by Chagas in Brazil, is of interest; the parasite was experimentally demonstrated to be transmitted by a bug. The work of Minchin and Woodcock on the blood parasites of fishes has afforded much valuable information on nuclear structure. The addition of *Leishmania infantum* and *Leishmania tropica* to the *Leishmania* group of parasites has advanced our knowledge of kala-azar. Another pathogenic form, *Histoplasma*, discovered by Darling in Panama, appears to have some relation to the foregoing group. Valuable experimental researches in the treatment of piroplasmoses have been made by Nuttall.

With regard to parasitic worms, one of the most extensive series of investigations has been that of Shipley on the relation of entozoa to grouse disease. Lühe has made a very useful summary of all the forms of helminths known to inhabit the fresh water fauna of Germany. Lebour and Nicoll have made numerous additions to the entozoa of British birds and fishes, while Odhner has greatly amplified Looss's work on African Trematodes. The existence of a third species of human blood fluke (*Schistosoma mansoni*) seems to be confirmed by Da Silva's work, but the matter is still in doubt. The most important experimental work on Trematodes is the investigation of the life-history and mode of infection of *Schistosoma*. The experiments of Katsurada and Hashegawa confirm Looss's theory that infection takes place through the skin, and that there is no intermediate host. The most important works on tapeworms are two monographs on bird cestodes by Fuhrmann and Ransom. Few observations have been made on human tapeworms. Stiles has reported the occurrence of *Plerocercoides prolifer* for the first time from America, while Léon has described two new species from Roumania, and Stephens one from Tasmania and one from Nigeria. On the Nematodes perhaps the most remarkable work has been that of Goldschmidt, who traced out the complete nervous system of *Ascaris* to its finest ramifications. Railliet and Henry have made a systematic study of the *Strongylidae*, and have shown that *Eustrongylus* is really more allied to the *Filariidae*. Leiper has shown that the cat and dog Ascarids are generically distinct, while Rodenwaldt has contributed some interesting observations on the behaviour of larval *Filariae* in the blood stream. The most important taxonomic papers have come from Jägerskiöld and von Linstow, while Stephens has recorded a new human Nematode, *Strongylus gibsoni*, from Hong Kong. A most important summary of our knowledge of the little-known group *Acanthocephala* has been made by Lühe.

Ectoparasitic arthropods have received a very considerable share of attention. The very extensive work of Nuttall and his collaborators at Cambridge on the relation of ticks to disease is well known and has done much to establish a thorough knowledge of the bionomics of these parasites. The importance of fleas in the spread of disease has also been further recognized, and has received the attention of numerous observers.

In Professor Ward's short review several important omissions have of necessity been made. He has succeeded, however, in indicating the main lines along which progress has been made and in emphasizing the growing claims of medical zoology, and in particular parasitology, to rank as an important branch of medical science.

GOOD SPIRITS AND BAD.

THE term "cyclothymia" (κύκλος, a circle; θυμός, humour or spirit), with which readers of recent Continental psychiatrical literature have become increasingly familiar, appears to have been employed first by Kahlbaum,[1] who described two forms—a "*vesania typica circularis*," with a tendency to terminal feeble-

[1] Kahlbaum: Ueber cykliches Irresein. *Breslauer aerzt. Ztschr.*, October, 1882.

ness of mind; and, secondly, a simple emotional phenomenon, an alternation of hypothymia and hyperthymia, light in degree, and not terminating in dementia. Kraepelin,[2] Wilmanns,[3] and others were unwilling to admit any fundamental difference between the two forms described by Kahlbaum, and regarded the lighter cyclothymic disturbances as minor or imperfectly developed forms of manic-depressive insanity. Deny[4] amplified this latter view with a difference, for he asserted that, like the graver forms, the mild forms are the manifestation of a special constitution which precedes the appearance of the more extreme deviations from the normal *curriculum vitae*, and survives their disappearance. Thus, according to Deny, cyclothymia is a phenomenon which may be exhibited not only in circular insanities, but also in psychasthenia and hereditary, or constitutional, neuroses, a view supported by Soukhanoff and others.

There can be little doubt that this latter view is correct. The sole difficulty appears to be where to draw the boundaries of its application. It has been well said by Professor Ballet that the world is full of circulars. The striking periodicity of inanimate and animate nature, the alternations of sleeping and waking, of hunger and satiety, appear to have impressed themselves so deeply upon all nervous mechanisms that their primal function of irritability has an inherent tendency to fluctuate in a regular way. Thus, in testing bodily and mental efficiency in individuals kept awake for seventy-two hours, Patrick and Gilbert[5] found their efficiency to be in all cases at its lowest ebb in the hours customarily given to sleep. Over and above these diurnal variations, however, some persons, perhaps many, exhibit fluctuations of longer wave length and greater amplitude. In regularly recurring sequences such subjects pass through successive phases of bodily inertness, emotional depression and intellectual torpor, to phases of bodily hyper-activity, pronounced euphoria and mental vivacity amounting at times to the creative productivity of genius. Some happy mortals there may be whose inner organic rhythm and emotional and mental life are at once so admirably balanced and so harmoniously attuned to their environment that they are enabled to pursue the even tenor of their way affected only by the customary shocks of circumstance; but most, and among them many highly-gifted individuals, are in some degree true circulars. In apparent independence of any external cause, they have their ups and downs.

In its most marked manifestations this tendency was noted very long ago; indeed, it is probable that its observation gave rise to the term "lunatic." It was commented upon, it appears, by Dulaurens in the sixteenth century, and simple cyclothymia appears to have been described by Sanctorius in the seventeenth century and later by Gall. In a recent essay on cyclothymia[6] Dr. Pierre-Kahn describes what he calls simple cyclothymia as a mere alternation of depression and excitation, without any morbid alteration in the content of consciousness apart from its pronounced affective colouring, a disequilibration of the humour. The subjects who when they seek medical advice have, as a rule, recourse to the neurologist rather than the alienist, are generally set down, he says, as neurasthenics. Prodromes, when they occur, are described by the patients most frequently as a *choc au cœur*, or a sudden feeling of malaise, or at times there is an impulsion to some bizarre act, but whenever present the prodromal disturbances have two characteristic features: they are sudden in onset and the prodrome is always the same for each crisis of the same sign (depression or excitation).

As to the attacks themselves little need be said, for the symptoms are those ordinarily associated with depression on the one hand and excitation on the other. The diminished mobility, hang-dog gait, flaccid and icteric visage, feelings of insufficiency, or of general malaise, and apathetic detachment from matters of customary interest, are accompanied by constipation, dyspepsia, and a general diminution of organic functions. Then suddenly—for Dr. Pierre-Kahn denies the existence of any "free interval," the end of one phase marking the beginning of the next—the reverse picture is presented. But throughout both phases the reasoning powers remain unaffected; the subjects are not insane, though they may be regarded by their acquaintances as "original" or eccentric.

Concerning the profoundly interesting questions of etiology and pathogenesis Dr. Pierre-Kahn has much to say, but most of it is exceedingly unsatisfactory. Under the former heading, he discusses infections, intoxications, traumatism, pregnancy, and the menses, and under the latter he emphasizes the importance of the hereditary factor and assumes a "circularism of coenesthetic states." To instance a pathological heredity as cause of these periodic disturbances is only to refer the unknown to the unknown; whilst, to speak of a "circularism of coenesthetic states," is merely to restate the problem in other terms. Krafft-Ebing attempted to push the pathogeny of the periodic psychoses a little nearer home when he said that they had for base "a durable pathological excitability of the central organ, analogous to the particular modification which constitutes epilepsy." Morel, Doutrebente, Anglade, and Jacquin also considered them to be a kind of *épilepsie larvée*, and in this connexion it may be recalled that, according to Aschaffenburg, the essential clinical characteristic of epilepsy, the common feature of all its forms, is a periodic fluctuation of emotional tone.

The cause of this, as of other forms of periodic disturbances of humour, is still to be found; but is it too venturesome to suggest that the various humoral disturbances may have a common cause? that whilst the form of expression of the disturbance, whether manic-depressive insanity, epilepsy, periodic inebriety, or recurrent neurasthenia or psychasthenia, may be and doubtless is determined by individual differences, inherited or acquired, the cause of the humoral periodicity may be one and the same? And, if so, is it not probable that the origin of the abnormal and greater fluctuations is to be sought in some perturbation of the mechanism which imposes the normal diurnal rhythm of sleep and wakefulness? Here, it must be admitted, we pass at once into the obscurity which envelops all ultimate biological phenomena. There are, however, indications that sleep is not due to any simple intoxication of nervous tissues, is not even primarily a psychical process, but is a true function of the vegetative life closely connected with the due action of the glands of internal secretion. For the cogent reasons advanced in favour of this hypothesis a remarkable work, entitled *La*

[2] Kraepelin: *Psychiatrie*, 1904.
[3] Wilmanns: Die leichten Fälle des manisch-depr. Irreseins (Zyclothymie), *Samml. klin. Vorträge*, von Volkmann, 1906.
[4] Deny: La Cyclothymie, *Semaine médicale*, April, 1908.
[5] Patrick and Gilbert: Effect of the Loss of Sleep. *University of Iowa Studies in Psychology*, i, 40-61. 1897.
[6] *La Cyclothymie: De la constitution cyclothymique et de ses manifestations.* Par le Dr. Pierre-Kahn. Préface de M. G. Deny. Paris: 1909. G. Steinheil. Pp. 252.

fonction du sommeil, by Dr. Salmon[1] of Florence, should be read. Remembering the close connexion of affective states with the general nutrition of the body, and particularly with secretory glands, it seems possible that, as he suggests, periodic emotional disturbances are closely linked with this all-important part of the vegetative life. In its practical, pedagogical, and even forensic bearings, the recognition of minor cyclothymic states, which must largely escape the notice of alienists, who are, as a rule, consulted only when its presence is manifested in aggravated form, is of some importance, and undoubtedly opens up a field for clinical investigation.

SOUTH AFRICAN CIVIL SURGEONS.

A GATHERING of medical men who served as civil surgeons during the South African war took place at the Connaught Rooms on June 1st. It brought together upwards of 180 members and guests, and met under the chairmanship of Mr. Lenthal Cheatle. The guest of the evening was Field Marshal Lord Kitchener, others who had accepted invitations to be present being the Presidents of the two Royal Colleges in London, and the Directors General of the medical departments of the Royal Navy and the Army. The dinner was served at a number of separate tables for parties of six or eight, and to facilitate the meeting of old friends, or of those who had served in the same areas, each of these was marked on the table plan in the ante-room with the name of some corps, division, or command. A toast to "The Imperial Forces" is a common and often somewhat trite feature of public dinners, but on this occasion was the toast of the evening. It was moved by the chairman, who, in the course of his speech, read out a message from the First Lord of the Admiralty with reference to the reform of the medical department of the navy, and regretting his inability to be present in person. The Board of Admiralty, he said, attached great weight to the views of the Naval Medical Service Committee which sat in 1909, and had devoted earnest thought to the proposals made by it, especially those relating to the post graduate training of naval medical officers. Practically all the recommendations made by the committee relating to naval nursing sisters, the organization of naval hospitals, and of naval sick berth staffs and reserves had been accepted by the Board. In addition hospital ships designed on the lines recommended by the committee had been included in the ship-building programme for the current year. As for the proposals made by the committee with reference to the officers in the medical department, some of the most important involved many issues, affected other departments of Government, financial and otherwise, and were still the subject of correspondence. Mr. McKenna could not, therefore, make any definite announcement as to their adoption in entirety or not. He would, however, do all that he could to expedite settlement and hoped very soon to make known what the changes would be. The toast was acknowledged by Lord Kitchener, who spoke very pleasantly of the work of the civil surgeons during the war and of the useful results which had accrued in many directions other than those immediately in view from their employment in large numbers. The remaining items on the toast list were "The Guests"—the toast to whom was moved by Sir Frederick Treves and acknowledged by Surgeon-General Gubbins—and "The Chairman," which was proposed by Sir Watson Cheyne and duly acknowledged by Mr. Cheatle. Before the party separated a compliment of the same kind was paid to the honorary secretaries of the dinner, Mr. Gordon Watson and Dr. E. Fremantle. It was acknowledged by the former, who from the beginning has been associated with the organization of these dinners, and to whom their continuance is largely due. The trouble which they involve must be obvious to any one who has ever attempted to bring together any considerable number of participants in a long past event, whatever its interest, and of men who, as in this particular instance, are widely scattered all over the world. Even their precise number has so far been a matter of some doubt, for a good many of them were not sent direct from this country. The figures Mr. Gordon Watson has in various ways secured point to a total of 1,060 odd. Of their names he has got 800. This dinner was the seventh which has been held since the end of the war; in future they are to be held biennally.

[1] A. Salmon: *La fonction du sommeil*. Paris: Vigot Frères, 1910.

WORCESTERSHIRE ASSISTANT SCHOOL MEDICAL OFFICER.

IT is on many grounds to be regretted that the Worcestershire County Council has succeeded, in spite of the Warning Notice and the efforts of the Worcester Division, in inducing a practitioner to accept the appointment of assistant school medical officer at a salary which is below the minimum approved by the Association for appointments of this kind. For over two years the British Medical Association has fought the battle for a minimum salary of £250 per annum for these appointments, and, on the whole, with great success. The success would have been unvarying had it not been for the regrettable fact that some practitioners seem inclined to place an unduly modest valuation upon the worth of their services. It has not been difficult to convince most local authorities making these appointments that a salary of £250 per annum is not too great to ask for the services of a practitioner who has spent at least five years and a considerable sum of money in qualifying to enter the profession and to hold a position of this kind. It would have been less difficult had it not been for the existence of the small class of practitioners referred to above, whose modesty cannot, however, be allowed to depreciate a standard of remuneration which is certainly not excessive. In the report of the Worcester County Education Committee contained in the *Worcester Echo* and *Worcester Daily Times* of May 20th, in which we find announced the appointment, at a salary of £200 per annum, of Miss Menzies as assistant school medical officer, unfavourable comment was made upon the action of the local Division of the Association, and especially upon that of its able and active honorary secretary, Dr. Neville Crowe. It appears that there were originally four candidates, two of whom withdrew on being informed of the circumstances by Dr. Crowe. One member of the County Council compared the efforts of Dr. Crowe to picketing, while another said that, when interviewing members of the council, he seemed to have no arguments. The latter speaker seems to have overlooked the fact that if the arguments were not sufficient to convince those members of the education authority who were determined to secure as cheap a medical officer as possible, they were at any rate sufficient to convince half the number of candidates who originally applied. If the Worcestershire Education Committee compares the number of candidates it succeeded in attracting with a salary of £200 per annum with the number of those who apply for posts

advertised at the accepted standard amount, it will probably come to the conclusion that the reasons by which Dr. Crowe, on behalf of his Division, succeeded in convincing two out of four of the candidates who did apply that they had made a mistake, were also sufficient to deter many practitioners from applying, and thus to prevent the Committee from having that choice of candidates which the ratepayers have a right to expect. We feel sure that Dr. Crowe—who has given a very great deal of time and energy to the organization of the Worcester Division and the carrying out of the policy of the Association locally—will be influenced far more by the admiration which his colleagues and those who are best able to judge have for his excellent work, than by the remarks made by a body whose sole object is apparently cheapness. The Education Committee may, however, be excused for the very natural soreness with which it must have noted the success which Dr. Crowe's work has had in inducing medical practitioners to refrain from applying for a post for which there should have been in an ordinary way twelve to twenty or more candidates.

DOCTORS AND MIDWIVES.

Mr. Lloyd George is unlike Joseph Addison—who was also in his day a Secretary of State—in many ways. One of these is his ease of delivery. It is recorded that Addison on one occasion, in attempting to address the House of Commons, could get no further than the words, "Mr. Speaker, I conceive," which he repeated three times. Whereupon an honourable member called the Speaker's attention to the fact that Mr. Addison had conceived three times and brought forth nothing. Mr. Lloyd George has brought forth many words, and one or two things. As far as he is concerned, the latest birth of time is his National Insurance Bill. Hailed by many as the dawn of a social millennium, it has been received with tempered enthusiasm by the doctors. As it is taken for granted by our legislators that the medical profession is a negligible quantity in the action of political forces, it is not surprising that the Chancellor of the Exchequer should have failed to see that without the co-operation of the doctors his scheme could not be worked. He has confessed that he learnt much from the Special Representative Meeting, and the resolutions passed by the Divisions of the British Medical Association, and the criticisms which have appeared in the press may have taught him still more. Although he has had few whole-hearted champions among the doctors, he apparently may count on the support of a class which, from its close connexion with labour and delivery may be considered to be of special importance. Doubtless, therefore, he will be pleased to learn that he has a doughty champion in a lady of this class who has honoured a doctor with a communication which he has forwarded to us. Referring to a letter which appeared in the *Daily Mail* she says "I hope Lloyd George has struck the victorous cord of his life if he can manage to keep people that is ammassing fortunes on water and soap under." Here we have the situation plainly stated. Mr. Lloyd George is going to "keep under" the doctors. The obstetric Sybil proceeds in a fine frenzy, breathlessly defiant of punctuation as of spelling: "first the Drs. tryed to gain as much experience as possibl at poor peoplis effering and cost of lives expermenting as every body knows a woman's bedside is not a place for a man at that time although he puts him self forward to do certain things and bluffs far more than cures. Its with the greatest discust a man looks on a doctor for this same reason and at the best they were helping nature and sometimes trying by experments to forse nature and brig death sooner than a patient woman to woman would do I am surprised to see a Dr. raising any objection to women attending women as Its their place not man's place I hope to God the time is at hand when no Dr. will be found at such a bed with his forsips and chloroform and tape making a lot of silly women believe he is a second god and only a money rogue thinks on £ S. D. not that he cares for out else very often the poor husbands is made to believe a lot of things that has never happened as he is told to keep out side if he is silly enough to give into such a thing. I know what Drs. are or pretend to be . . . (down with the rotton Idea that women are not fit for a woman's bedside a man is not for it. Its not his place." This vindication of the midwife comes from Liverpool; we are sorry we are unable to let Mr. Lloyd George know the name of his fair ally, as it is unsigned. Mr. Croaker, in Goldsmith's *Goodnatured Man*, said that when he was determined he always listened to reason, because then it could do no harm. It may, perhaps, be surmised without impertinence that Mr. Lloyd George is of a kindred temper of mind. He will therefore, we think, be glad to have the midwife's view of his bill.

A ROMAN QUACK.

M. Fernand Mazade, in an article which recently appeared in the *Société Nouvelle*, gives an interesting account of Lucius Horatillavus, a Roman quack of the time of Augustus. He was a handsome man, and came from Naples to Rome, his sole outfit being a toga made of a piece of cloth adorned with obscene pictures, and a small Asiatic mitre. Like many of his kind at that day he sold poisons and invented five or six new remedies which were more or less haphazard mixtures of wine and poisonous substances. He had the good luck to cure his first patient, Titus Cnoeus Leno, who, being a poet, straightway constituted himself the *vates sacer* of his physician, and induced some of his fashionable mistresses to place themselves under his hands. So profitable was Horatillavus's practice that he is said to have saved one hundred and fifty thousand sesterces in a few months. But for a moment his good fortune seemed to abandon him. A Roman lady, Sulpicia Pallas, died suddenly under his ministrations. This may have been due to his ignorance or carelessness; but he was accused of having poisoned his patient. This event might have been expected to bring his career to an end; but, as in the case of St. John Long, it was not long before he recovered the confidence of the people whom he deluded with his mystical language and promises of cure. He had three methods of treatment, all consisting of baths—hot, tepid, or cold—preceded or followed by the taking of wonder-working medicines. Horatillavus treated every kind of disease, internal and external; he even practised midwifery, which was then in the hands of women. Ten years after he settled in Rome he had accumulated a fortune of some six million sesterces. He had a villa at Tusculum, whither he went three times a month; there he led a luxurious life in the most beautiful surroundings, and there his evil fate overtook him. His orchard was his especial pride. One day he found that birds had played havoc with his figs, the like of which were not to be found in Italy. Determined to prevent similar depredations in future, he poisoned the fig trees. Continuing his walk, he plucked fruits of various kinds here and there. While eating the fruit he had culled and

drinking choice wine, he put into his mouth a poisoned fig, which he had inadvertently gathered, and quickly died in convulsions. Before passing away, however, he is said to have composed his own epitaph. This M. Mazade believes he has found. It is to the following effect: "The Manes of Sulpicia Pallas have avenged her. Here lies Lucius Horatillavus, physician, who poisoned himself." If the epitaph is genuine it is a confession of guilt; or it may be charitably interpreted as an expression of remorse. In any case, the death of the quack by his own poison is a curious Nemesis. The manner of his death proves that it was accidental, as few quacks are bold enough to take their own medicines.

THE GARDEN SUBURB MOVEMENT.

THE garden suburb movement has lately been receiving a good deal of encouragement, and has been taking vigorous strides. The Modern House-building and Town-planning Exhibition at Gidea Park, on the outskirts of Romford, which has already been the subject of an article in these columns, was opened on June 1st with a characteristic speech by the President of the Local Government Board, who pointed out the splendid position of Essex with regard to public health—Cinderella of the metropolitan counties though she be—in lowness of death-rate and of infant mortality, and in the front she opposed to the white scourge of consumption. Mr. Burns had some pungent criticisms to make respecting London's basement houses and forecourt shops, and he also satirized the front room of the poorer class of dwelling—a room, he said, sacred to the doctor and undertaker, stuffed birds, and artificial fruit. There were several other excellent speeches, none more to the point than that of Alderman Thompson, Chairman of the National Town-planning Council, who rejoiced to see the new housing movement getting clear of philanthropy and even of what might be called public utility work, and settling down upon the steady lines of commerce. The Earl of Warwick, who presided over the gathering, humorously said that he did not see how a garden suburb would solve the problem of a miner on his coalfield, who asked for a new house because he had thirteen children and another expected! Mr. Burns rose to his feet and to the occasion. He suggested a committee of three, consisting of the Earl as mine-owner, a representative of the local authority, and the man himself. The President of the Local Government Board should be chairman, "and if we could not devise a way out of the difficulty," said Mr. Burns, "I am not the sixteenth of eighteen children." Another recent garden suburb function was of a much more stately character. It was the opening by the Duke and Duchess of Connaught of the club and institute at Brentham, the pioneer co-partnership suburb of the Ealing Tenants, Limited. Mr. Henry Vivian, who has been so closely identified with the movement of co-partnership in housing, had a stirring story to tell of the development of co-partnership during the last ten years, and of its present responsibility for fourteen societies, with 652 acres of land, which are destined to have 6,500 houses and a population of more than 30,000. The institute is a palatial building for a garden suburb. It is more than a glorified club, for it is intended that it shall be the centre of the social life of a co-partnership community. In the co-partnership system a feeling of neighbourliness and the cultivation of the social amenities are at least as essential to success as any financial ingredient, and hence the recognition of the part taken by the playing field, the village green, the billiard room, and the common library. A number of lords and ladies graced the occasion, and the Duke of Connaught, in a sympathetic speech, showed the same appreciation of the housing problem, and of its influence upon the health and morality of the race, as characterized His late Majesty and also characterizes King George, who recently visited the co-partnership estate at Hampstead. An interesting feature of the afternoon was a display by the Women's Sick and Wounded Convoy Corps and the 48th Division of the St. John Ambulance Corps.

A PROBLEM OF PERSONALITY.

IN the JOURNAL of May 28th, 1910, page 1313, a detailed account was given of the pygopagous twins known as Rosa-Josepha Blazek. They made their first public appearance in 1891, when they were 13 years of age. Marcel Baudouin described them at the time as intelligent young girls of different tastes. For instance, one liked beer, the other preferred wine; one was partial to salad, which was distasteful to the other. One could keep awake while the other slept. The radial pulses did not keep time. As to the psychology of the twins nothing definite seems to have been elicited. They spoke only Czech, and this made it practically impossible for him to get accurate information from them as to their emotions—fear, hate, and so forth. Obviously, even had there been no difficulty of language, little reliance could have been placed on the answers of children of that age who would be unable to analyse their mental processes. They would either say what they thought the questioner wanted or what was suggested to them, or on the other hand, from love of mischief, might deliberately mislead him. On testing sensibility it was found that there was only a limited area in the lower extremities common to the twins. History appears to be silent about them till they had reached the age of 31, when an important development occurred. They applied at the General Hospital, Prague, one of them (Rosa) having an abdominal swelling. The possibility of pregnancy was denied. Nevertheless, Rosa was delivered of a healthy boy on April 17th, 1910. Dr. Trunecek, who examined the twins on the twelfth day after delivery, found that they were united posteriorly by the sacrum which was common to the pair. There were lineæ albicantes on Rosa's abdomen and not on her sister's, but the nipples of each were pigmented and milk was secreted by the breasts of both. There was a common anus and perineum. There was a rectal ampulla into which the large gut of each emptied itself 2 in. above the anal outlet. The urinary meatus was also common; the urethra was single for an inch above the meatus where it bifurcated. Rosa had undergone lithotrity a few years before and there remained traces of cystitis. Desire to pass water was distinct in the twins, but it was otherwise in regard to defæcation. While Rosa's uterus was as big as a man's fist, on Josepha's side that organ was of the nulliparous type. The vagina was of the same type, with well-marked rugæ, while on Rosa's side the mucosa was hypertrophied and smooth. Anatomically, therefore, one of the twins was a virgin, while the other, besides the indubitable proof supplied by parturition, presented the local conditions that would be expected in a woman who had had frequent intercourse. The case presents problems in which the old casuists would have revelled. They would have debated whether Josepha played simply a passive part, or how far she was an active participator in the act which led to impregnation, or at least morally a consenting party; whether there were two souls in one body, or two bodies with one soul, as far as sexual matters were concerned. If the old adage, *propter uterum est mulier id quod est*

be accepted, the decision must have been that the twins were two women. Even at the present day the problem of personality has seriously exercised the minds of people who have had to deal with them in ordinary affairs of life. In January last, as reported in the *Times*, a discussion took place at the King's Cross Station of the Great Northern Railway when the twins arrived from Edinburgh. It was found they had bought only one ticket. The question arose whether the railway company was entitled to ask for a second fare. Such a case, it is said, had never come before the officials, and after much perplexity they had to be content with taking the name and address of Mr. Ike S. Rose of Berlin, who accompanied the twins, and who stated that he had never taken more than one ticket, and had never been asked for a second fare. We have not heard anything further about the case; but as the mother was carrying a nine months old baby in her arms, while the other, as we said, is at least a *demi-vierge*—in a different sense from that in which the word is used by Marcel Prévost in his well-known novel—we do not understand on what grounds they are treated as one individual. Although their union, such as it is, is accepted as entitling them to the privilege of travelling as one individual, there are drawbacks to the theory that they are what George Colman might have called two single ladies rolled into one. A short time ago, when they were on exhibition in a music hall at Berlin, a warrant was issued for the arrest of one of them for failure to comply with a judgement against her in a suit for breach of contract Being unable to cut the Gordian knot of the leg a problem with which he had to deal, the officer seized and imprisoned both. The innocent sister forthwith brought an action for illegal seizure and detention of her person. We have not seen the issue of the case, if it ever came before the court, but it was stated that the counsel for the plaintiff would argue that Rosa-Josepha are legally separate individuals, and that the State could be held liable in damages for infringement of the liberty of one of them. This opens up all sorts of possible forensic complications. For instance, if a man marries one, will he *ipso facto* be guilty of bigamy? The Siamese twins were both married, but there was in them no fusion of sex, and therefore, there need not have been any doubt as to paternity. In them, too, moreover, there was sufficient mixture of persons to make one suffer for the other's sin. For one of the brothers was given to drink, and when he got drunk the other was sick. In the case here under consideration, Josepha suffered laceration of the vagina when her sister was confined. These twins might truly be said in the words of the poet:

> To grow together
> Like to a double cherry, seeming parted,
> But yet a union in partition.

EUGENICS TWO HUNDRED YEARS AGO.

THE modern scientist is apt to speak somewhat boastfully of the new departments of eugenics and genetics as the offspring of the twentieth century in its most far-seeing and beneficent mood, but there were brave men before Agamemnon, and there were some not unworthy notions of eugenics in the early years of the eighteenth century, as the following paragraphs from the *Tatler*[1] show. Steele, writing under the pseudonym of "Isaac Bickerstaff," is dealing with the improvement of the breed, and he has something to say of the Bickerstaff ancestry. There was in the days of King Arthur a knight of the Round Table, called Sir Isaac Bickerstaff. "He was low of stature and of a very swarthy complexion, not unlike a Portuguese Jew. But he was more prudent than men of that height usually are, and would often communicate to his friends his design of lengthening and whitening his posterity." So he married his eldest son to a lady who was very tall and very fair. The issue of this experiment in eugenics "with the help of high shoes made a tolerable figure in the next age, though the complexion of the family was obscure until the fourth generation from that marriage." Thereafter, till the time of William the Conqueror, fine needlework and fine skins made the female Bickerstaffs famous. Among the males, however, there were signs of dysgenesia, for "there happened an unlucky accident," says Bickerstaff, "in the reign of Richard III; the eldest son of Philip then chief of the family, being born with an hump-back and very high nose." "This was the more astonishing," he continues, "because none of his forefathers ever had such a blemish," and even the most strictly recessive of unit characters could hardly have lain concealed so long as that; "nor, indeed, was there any of that make in the neighbourhood, except the butler, who was noted for round shoulders and a Roman nose. What made the nose the less excusable was the remarkable smallness of his eyes." Eugenics was invoked once more. "These several defects were mended by succeeding matches; the eyes were opened in the next generation, and the hump fell in a century and a half; but the greatest difficulty was to reduce the nose, which I do not find was accomplished until about the middle of Henry VII's reign, or, rather, the beginning of that of Henry VIII." Other improvements were effected, but "our race," says Isaac, "suffered very much by the marriage of one of our heiresses with an eminent courtier who gave us spindleshanks and cramps in our bones; insomuch that we did not recover our health and legs until Sir Walter Bickerstaff married Maud the milkmaid, of whom the then Garter King at Arms, a facetious person, said pleasantly enough, that she had spoiled our blood, but mended our constitutions." The writer brings his remarks "pleasantly enough" to a conclusion with words which have an aphoristic and eugenistic ring about them, that "one might wear any passion out of a family by culture, as skilful gardeners blot a colour out of a tulip that hurts its beauty."

[1] *The Tatler, or Lucubrations of Isaac Bickerstaff, Esq.* Vol. ii, No. 75, October 1st, 1709.

CROYDON UNION APPOINTMENT.

IN the JOURNAL of March 25th attention was drawn to the difficulty which had arisen between the medical practitioners resident at Thornton Heath and the Croydon Board of Guardians in connexion with the appointment of a medical officer for the No. 2 District of the Croydon Union. In consequence of a great increase of the population among the class from which the parish patients are drawn, and a corresponding increase in the amount of work, the late holder of the appointment applied for an increase of salary, which was refused. He thereupon resigned, and when the guardians advertised the post at a salary of £70 a year, a reduction of £5 on the old salary, as a result of the action of the local Division, no applications were received. The guardians thereupon raised the salary to £120 per annum, the sum for which the Division had contended. For this increased salary the five members of the profession resident in the district were candidates together with Dr. Gording, a practitioner residing outside the district, and Dr. Gording was appointed conditionally on his establishing a surgery in the district. It was felt by the Division

that the only reason for the action of the guardians in thus going outside the resident practitioners was to punish them for the stand which had been made for an increase of salary; and Dr. Gording, on being approached on the subject, also took this view of the situation, and resigned the appointment. The guardians have now appointed one of the original five members resident in the district, and the incident is thus happily closed. At a meeting of the Croydon Division held on May 30th a hearty vote of appreciation of the action of the five members who took united action, and of the way in which Dr. Gording had received the representations of the Division, was unanimously passed. We take this opportunity of recording our congratulations to Drs. Passman, Chennells, Pepper, Rippon, Murdoch, and Gording for this splendid example of what union in the profession, together with an active sense of *esprit de corps*, can do. The happy termination of the dispute must be a considerable source of satisfaction to Mr. E. H. Willock, the active Honorary Secretary of the Croydon Division, on whose shoulders much of the work of negotiation has fallen.

WE regret to have to announce the death of Dr. Alexander Bruce, Physician to the Edinburgh Royal Infirmary, and hope to publish an obituary notice in a subsequent issue.

THE President of the Board of Education will receive a deputation from the British Medical Association on the subject of the medical inspection and treatment of school children in London on Tuesday, June 27th.

IT is announced that Sir Victor Horsley has accepted the invitation of the executive of the North Islington Liberal and Radical Association to address the council of that association with a view to his adoption as prospective Liberal and Radical candidate for the division at the next election. Last December Mr. G. A. Touche defeated Mr. D. S. Waterlow, the former Liberal member.

General Medical Council.

NOTES.

Preliminary Education.—Comments contained in the reports of certain post-graduate examinations, namely, those for the public medical services, indicated that in respect of general education a good many even of those who had succeeded in obtaining qualifications did not possess the attainments that could be desired, and the Education Committee endeavoured to ascertain from the examining boards which had been the entrance examinations passed by the candidates whose attainments had been adversely criticized. This, however, was found to be impracticable, and a request was formulated that, if possible, this information should be in future placed at the disposal of the Council. At the end of the last session, and after some of those interested had left, a resolution was passed that after the end of 1913 certain of the junior examinations now available should no longer be recognized, and amongst these was the examination conducted on behalf of the Irish Royal Colleges. This gave rise to a lengthy discussion on the following day, which resulted in the recommendation of the committee being withdrawn, and a resolution substituted providing that this particular examination should be retained until it had been shown to be inadequate. Another recommendation made by the committee was that it should be empowered to employ expert assistance to enable it to arrive at conclusions as to the substitution of new examinations of a higher standard, and for this purpose a vote of £100 was asked for. The Senior Treasurer moved an amendment to reduce this amount to £50, upon the ground that it was not necessary for the Council to enter into much detail on the subject of general education, of which it was not, perhaps, the best judge, but that it might well be content to accept examinations generally reputed to be of sufficiently high standard, a contention to which the long discussion already alluded to lent weight. The amendment was, however, lost, and the £100 was voted.

Science Teaching in Secondary Schools.—It was moved by Sir Henry Morris and seconded by Dr. Saundby that in general terms, when secondary schools had been inspected and approved by licensing bodies, they should be approved by the Council as places at which medical study may be commenced. It was urged that already the Council had recognized many institutions other than medical schools for this purpose, though it could not be maintained that the instruction given in these places was one whit better than that now obtainable at the public schools, and that, as in fact many secondary schools were now recognized for the purpose by the Conjoint Board in England, and by the Universities of Oxford, Cambridge, and London, the change proposed was no more than would serve to bring the Council's rules into accord with existing facts which the Council had no power to alter. It was pointed out that, although the Education Committee had somewhat recently pronounced against this change, that committee was largely composed of Scottish and Irish members, and that admittedly in those countries the same facilities for science instruction in secondary schools did not exist; and further that the change, if not made now, would be inevitable from the march of public opinion within a few years. The President feared the change, if made, would tend towards whittling down the five-year curriculum, but this was contested by subsequent speakers, who showed that the control of this would lie, as it does now lie, with the licensing bodies, who had the power to make their own regulations for their respective qualifications, nor could it be maintained that, bodies other than medical schools being already recognized by the Council, any question of length of curriculum was dependent upon the place of study being a technical school or a secondary school. Another point raised against the proposal was that the chemistry, physics, and biology useful to the medical man were becoming daily more specialized, and that this special direction of study could not be expected at a secondary school. But neither could it be expected at a technical institute, so that this argument went to the refusal to recognize any but medical schools. The answer to this, as has frequently been pointed out, is that the initial grounding of a lad approaching for the first time the study of science must be the same in all cases, whatever the ultimate application is to be, and that in one year no more than the merest grounding is possible. A lad fresh to the study of the sciences is in no position to be brought face to face with the exceedingly difficult problems of chemistry and physics which constitute their application to physiology, pathology, and medicine. In the further discussion of the subject on the last day of the session certain objections were urged by the Chairman of the Education Committee and by others, some of which belonged to the past rather than to the present; but it was felt that in its existing form the duty of reporting favourably upon a body which it could not really approve might seem to be imposed upon the Students' Registration Committee, and the form of the motion was by consent altered so as to make it clear that this committee was to report to the Council upon the evidence offered to it, and that the decision whether the school should be included in its list or not should rest

with the Council. In this amended form the resolution was passed by the large majority of 24 to 5. This settles the long-vexed question of the recognition of secondary schools, an extension of recognition which we have consistently advocated for years.

The Apothecaries' Hall of Ireland.—The reports of the Assistant Examiners appointed by the Council contained strictures upon the general education of the candidates, and upon their knowledge of operative methods; yet of eight candidates seven passed, and the marks given appeared hardly to correspond with the comments. Accordingly, a motion that they be asked to explain this discrepancy was brought up and passed. The Apothecaries' Hall was also asked in the terms of the Act to give certain particulars about exemptions, which had not been answered in response to a previous inquiry. Four Indian candidates who had been refused admission to a Scottish examination had been exempted from the first, second, and third examinations, and admitted to the final examination of the Hall. It seemed that some or all of these candidates had studied according to the requirements for the subordinate branch of the Indian Medical Service, and the Examination Committee was of opinion that there was not evidence that the courses of study followed and the examinations passed guaranteed "the possession of the knowledge and skill requisite," etc.

Midwives Act.—Amended rules framed by the Midwives Board were brought up for the sanction of the English Branch Council, the body appointed by statute for this purpose. The alterations proposed were all considered to be improvements, and did not involve any change of principle. The only discussion of particular interest was whether breech presentations, as being somewhat dangerous to the child, should remain amongst those left to the midwife, the rule being that she must seek medical assistance in all presentations other than "uncomplicated head or breech." It was decided that the rule should be left as it stands, the occurrence of the word "uncomplicated" being deemed a sufficient safeguard.

The Finance Report.—The report of the Finance Committee showed a deficit of £295 upon the year's working. Though this amount is not very serious in itself, the fact that it was caused by a diminution in income renders it significant. The number of students registering and also of practitioners subsequently qualifying and registering upon the *Medical Register* shows a constant and steady diminution when taken over five-year periods. Students registered from 1886 to 1890 averaged 1,927 per annum, whilst from 1906 to 1910 the average was 1,126; similarly from 1891 to 1895 the numbers registered as qualified averaged 1,455, and from 1906 to 1910 only 1,117. It was pointed out by Mr. Tomes, the Senior Treasurer, that the wording of the Act caused an unnecessary and heavy expenditure in the election of Direct Representatives. The cost of an election, which amounts to from £500 to £600, is not affected by the number of vacant seats and of candidates. Consequently when a vacancy occurred, as lately happened by the death of Dr. McManus, an election was necessitated, which took place in May, although the normal quinquennial election of Direct Representatives will take place this coming autumn. That is not the whole trouble, for, as the new representative is not elected for the balance of his predecessor's time, but for five years, and a Direct Representative cannot set it right by resigning, since this renders him ineligible for re-election, the timing can never come right again, but there may have to be a separate single election in perpetuity. As a similar want of synchrony in the election of the three English representatives, the unnecessary expenditure involved may run into thousands of pounds in the future. The President was authorized to draw the attention of the Lord President to these anomalies with a view of remedying them should a convenient opportunity arise.

Unqualified Practice Prevention Committee.—This committee had on previous occasions presented most valuable reports upon the conditions of medical practice in various countries. The first outcome of their inquiries was an investigation undertaken by the Local Government Board upon the extent of unqualified practice in this country, and a parliamentary paper embodying the results was published last year which, while containing some valuable information, is very incomplete, at all events as regards some localities. The committee brought forward a recommendation, which the Council adopted, to the effect that the necessity of legislation for the better protection of the public should be urged upon the Government, and the Council offered its assistance in framing such a measure.

Public Health.—A report was received from this committee which advocated certain changes in the regulations for public health diplomas. Dr. Newsholme explained that whilst the time required was shortened, more work was actually prescribed. The report was not discussed, as it was thought better to submit the recommendations in the first place to the licensing bodies and to the Local Government Board.

Medical Notes in Parliament.

[FROM OUR LOBBY CORRESPONDENT.]

Sewers and Drains.—In answer to Mr. Raffan, who asked if the Government proposed to do anything with regard to the unsatisfactory state of the law, Mr. Burns said that he had received a number of representations of the kind referred to, but could not promise to introduce legislation on the subject this session. The Public Health (Sewers and Drains) Bill, which was now before the House, would, with some amendment, go a long way to meet the difficulty caused by the present unsatisfactory state of the law. If the bill could be got through unopposed he would be pleased to do the rest of the business.

The Asylum Officers (Employment, Pensions, and Superannuation) Bill.—The Select Committee appointed to consider this bill consists of Mr. Charles Bathurst, Mr. Black, Mr. Brocklehurst, Mr. Cotton, Mr. Charles Craig, Sir Henry Craik, Mr. Dickinson, Mr. Hayden, Mr. Higham, Sir David Brynmor Jones, Mr. M'Callum, Mr. William Redmond, Mr. Remnant, Mr. Charles Roberts, Mr. Watson Rutherford, Mr. Stanier, Mr. Wardle, and Viscount Wolmer.

The London Poor Bill.—Lord Alexander Thynne has brought in a bill to provide for the amendment and better administration of the law relating to the poor of London. The bill starts with substituting for the thirty-one boards of guardians which at present operate within the metropolitan area, one central authority in which would be concentrated all the functions now distributed among five or six different kinds of authority. Three advantages, he said, would follow: Greater economy and efficiency of administration; improved status and character of the officials; and, lastly, one central rate for all Poor Law purposes in the metropolis. The central authority would be the county council acting through a statutory committee, and with local committees for smaller areas. The general principles of administration laid down in the second part of the bill are directed to the rehabilitation of the individual as opposed to punitive or deterrent methods. The bill is backed by Mr. Harris, Mr. Guinness, Sir W. Bull, Colonel Griffith-Boscawen, and Mr. Peel.

England and Wales.

[FROM OUR SPECIAL CORRESPONDENTS.]

SOUTH WALES.

THE UNIVERSITY COLLEGE OF SOUTH WALES AND MONMOUTHSHIRE.

THE BUILDINGS OF THE CARDIFF MEDICAL SCHOOL.

THE Cardiff Medical School, now one of the most important constituents of the new University of Wales, is at present carried on in the old college buildings in Newport Road. Later on, when sufficient money has been collected for building purposes, it is intended that the school shall share the new college buildings in Cathays Park. One of these buildings—housing the administrative department, the arts school, the normal school, and the library—has already been completed, and forms the western side of a proposed square of buildings. With the erection of the remaining three sides it was never intended to proceed until the debt on the first block had been acquitted, and it now remains to be seen whether, so far as the medical department of the college is concerned, the original plan will not be entirely abandoned or greatly modified.

This certainly seems likely to be the case if due attention is paid to the considerations raised in a paper read in April by Dr. Berry Haycraft, Dean of the Medical Faculty and Professor of Physiology in the College, before the Cardiff Medical Society and since published as an illustrated pamphlet. As an indictment of the present plans it gains force from the form in which its author expressed his views. Tracing the history of the development of the architectural construction of universities from mediaeval times, he showed that the plans for the new university buildings at Cardiff conformed to ancient, not modern, ideas, and that a change was necessary if Cardiff was to possess a successful medical school. As examples of the earliest types of university buildings he cited certain of the colleges at Oxford and Cambridge. They consisted for the most part of rooms for students and teachers, together with a dining hall and a chapel, but they contained no laboratories or museums, for at the time they were built science was in a very embryonic condition. All the accommodation they provided was arranged around a large self-contained quadrangle shut in by gates. This plan of building was excellently devised for the purpose it was meant to fulfil, securing, as it did, quietude and freedom from interference. It soon became stereotyped and commended itself by its very compactness to subsequent university builders, and it was adopted when the University of Edinburgh was built.

Unfortunately it was likewise adopted when that university was rebuilt some thirty years ago, and though the buildings resulting were a gem of architecture which for a time fulfilled its purpose admirably, they were now a structure from which everybody who worked therein wished to be free but could not escape. This was because the quadrangular form of university building allowed of no expansion, and provision for expansion was absolutely necessary in connexion with the science of medicine and its teaching. During the last twenty years the teaching requirements of physiology, for instance, had enormously increased. Not only was histology, but chemical pathology and experimental physiology also were now taught separately in practical classes. Each required a special class of instruments for the students to use and different laboratory arrangements. But in addition to the growth of individual sciences new sciences arose, bacteriology being a case in point. This need of expansion had been recognized abroad a good many years ago, and attempts to break away from the quadrangular type of university building had also been made in Great Britain, a notable example being provided by Glasgow. Professor Haycraft briefly described the principal university buildings in the United Kingdom, showing the extent to which they meet modern needs, and finished this part of his address by an allusion to the arrangements at Bristol, which he described as excellent. He also pointed out that Bristol was not far from Cardiff, and indicated that unless care were taken, the Bristol Medical School might tap the recruiting grounds for medical students of the University of Wales and thus prove a formidable rival to its medical school. He then turned to the plans at present in view at Cardiff. The new school, he showed, would form part of a building of the old stereotyped form, and no sooner would they be settled in it than they would have to try to go elsewhere. He himself, in his own physiological laboratory, would be wedged in by anatomy above and by materia medica and engineering below, and his work would be unable to expand in any direction.

A second point that Professor Haycraft emphasized was the importance of the medical school being near the place where the students obtained clinical instruction. The new laboratories of the Cardiff school, besides being capable of expansion, should be built near the Infirmary, instead of being placed a mile away, as would be the case if they were erected in Cathays Park. Anatomy and physiology led the student to the pathological and clinical work which he would find in the infirmary, and only perhaps the teacher and the student knew the value and importance of having these related studies placed close together for study. In this connexion he noted that both at Birmingham and Manchester the school of medicine suffered from the fact that the anatomical and physiological laboratories were built some distance from the infirmaries. In the discussion which followed, Professor Haycraft's views were thoroughly endorsed, and a committee was formed to consider the matter and bring it before the authorities.

NEW GYNAECOLOGICAL THEATRE AT THE CARDIFF INFIRMARY.

There was a large gathering at the Cardiff Infirmary when Lady Aberdare officiated at the opening of the new gynaecological operating theatre. The guests who were present formed a procession from the out-patient department to the theatre. Here a prayer was said by the Rev. W. E. Winks, and Lady Aberdare declared the theatre open with these words: "May God bless all those who in this theatre will fight death and disease." The Lord Bishop of Llandaff then pronounced the benediction, and the company proceeded to a large ward in the new wing which has not yet been opened.

Here on the platform with the Chairman, Major-General H. H. Lee, J.P. (Chairman of the Board of Management of the Infirmary), assembled the Lord Bishop of Llandaff and Mrs. Hughes, Lord and Lady Aberdare, the Lord Mayor and Lady Mayoress of Cardiff, Lieutenant-Colonel G. M. Bruce Vaughan, Dr. Ewen Maclean (Senior Gynaecologist to the Infirmary), and Sir Francis Champneys, Bart., M.D., Chairman of the Central Midwives Board, who was specially invited to attend the ceremony.

Lady Aberdare, who has taken the greatest interest in the Cardiff Infirmary, and particularly in the gynaecological ward, expressed her satisfaction at the completion of the new operating theatre, and referred gracefully to the honour paid her by the committee, who desired that the theatre should be named after her.

Dr. Ewen Maclean, on behalf of himself and his colleague Dr. Collins, thanked Lady Aberdare and the other donors for the great gift of the new theatre.

Sir Francis Champneys said he understood that Cardiff was at a very important crisis in the development of medical education and practice. He had just seen and admired the new municipal buildings, but he thought that the Cardiff Infirmary, with its new additions, was quite worthy of the city. The new operating theatre was not only up to date, but it was in advance of all existing operating theatres. The question might be asked, "What is the good of spending all this money?" and his reply was that as a woman was a very real asset to the State when

she had a family to bring up, any expenditure which had for its object the complete and perfect restoration of her health was money well spent. The matter must also be regarded from the educational standpoint. A hospital was like a great missionary centre, it not only dealt with the individual, but from it there radiated a great wave of good which spread throughout the surrounding country, and, in fact, throughout the world. The medical degrees of the University of Wales were hard to obtain, because it was necessary to take a degree in science previously. The watchword of the University of Wales was "Thorough"; their principle was "There is plenty of room at the top." Speaking of the accommodation at the infirmary, Sir Francis was glad to hear that a fund had been started to endow beds for lying-in cases, and he hoped that some day some one would build and endow a lying-in ward or a lying in hospital. It was absolutely essential that beds should be available for this purpose in order that the full medical curriculum could be provided at Cardiff, and there was a real need for some such institution for the training of midwives and the treatment of difficult labours. Much had already been done in the organization of midwives' training through the energies of Dr. Ewen Maclean, who had worked indefatigably. Sir Francis concluded by proposing a vote of thanks, which was carried by acclamation, to Lady Aberdare, who was known for her good deeds not only in Cardiff and Mountain Ash, but also in London.

The new operating theatre is fitted in the most up-to-date manner, with students' gallery at the north end, separated from the table by a glazed screen the full length of the room. Each of the sinks is fitted with a mixing valve, constructed in such a way that the water can be regulated to any temperature required. The improvement in the valve over other patterns is that the surgeon using it turns on the water from a lever, over which a film of water is flowing, thus doing away with the necessity for the loose handles usually adopted; but loose handles are also in readiness, and can be used if desired. Marmorite shelves are fitted in convenient places, and can be removed for cleaning purposes. The theatre is heated by means of two sets of radiators, one set being heated by hot water to the temperature of 70°, the other by steam designed to raise in five minutes the temperature to 90° if necessary. The ventilation is simple, fresh air being introduced through carbolized wool behind the radiators, and the vitiated air extracted by an 18 in. blade electric fan. One of Thompson Ritchie's hospital operating standards, with 8 ft. long arm and electric bulbs, is arranged to carry light over any part of the table during operations. The screen is plugged for electric lanterns and for heating the operating table by electricity. The theatre is lighted by four bulkhead ceiling lights (100 volt). The floor is of terrazzo, and the walls are lined with white Sicilian marble in large slabs and polished. The ceiling is in Parian cement and enamelled white. The interior painting is enamelled white, and the radiators are finished in aluminium paint. Arrangement is made for hosing down the operation room, which falls to a sink outlet in one corner. The operating theatre is excellently lighted by a north top-light the full width of the building, in addition to end and side lights, and most of the casements are made to open.

The sterilizer room, entered by an archway from the operating theatre, is lined with marble, etc., to match the theatre, and is fitted up with the latest description of steam sterilizers for dressings, dishes, water, and instruments, and a spare sterilizer, worked either by gas or electricity, in case of the steam sterilizers being out of use. A hood over the sterilizers, with flue, carries away all steam.

The operating theatre and anaesthetic room are entered by sliding flush panelled teak doors. All other doors in this building are of teak and swing both ways, to allow the surgeon to use his shoulder in opening instead of his hands. All angles of the building are rounded.

LIVERPOOL.

IRISH MEDICAL SCHOOLS' AND GRADUATES' ASSOCIATION.

THE members of the Irish Medical Schools' and Graduates' Association held a most successful meeting in Liverpool on May 27th. The number of members of the association is about 700, and at the Liverpool meeting some 150 visitors did honour to the entertainment of the local members, who naturally mustered very strong. The president of the Liverpool Medical Institution, the senior physician of the Royal Infirmary, is a distinguished graduate of Trinity College, Dublin. The arrangements, which were most successfully carried through, were made by the indefatigable local secretaries, Dr. J. J. O'Hagan, Dr. Heaney, Dr. Allen.

On Saturday visitors had an opportunity of seeing the Liverpool docks and the river, but the great feature of the meeting was the banquet at the Exchange Station Hotel, under the chairmanship of Sir Charles Cameron. The speeches were limited to five minutes each, and were, perhaps for this reason, excellent. The Insurance Bill came into most of the speakers' minds. Professor Benjamin Moore alluded to the necessary increase that must come in the expense of keeping the nation defended from internal foes. We were willing, he said, to spend some sixty millions a year on preparations for war, and he looked forward to the country being willing to expend at least thirty millions on defence against inevitable foes; even though the medical profession was wiping out these foes to its own detriment, for typhoid fever was disappearing and with tuberculosis would follow obsolete typhus fever and small-pox, yet much remained to be done, and could not be accomplished without adequate payment of the medical profession. In Professor Moore's opinion this was not going to be accomplished through friendly societies.

Dr. Bradshaw, in proposing the toast of "The Visitors," told how the Association had come to Liverpool largely through the energy of the local Secretary, Dr. O'Hagan. He coupled the toast with the names of Sir Archibald Williamson, the President of the Royal Infirmary and of the District Nursing Association, and of Mr. Heild, the editor of one of the most influential local newspapers.

Sir A. Williamson, in replying, commended Mr. Lloyd George's attempts to solve the insurance problem, and endeavoured to prove that the Insurance Bill would benefit the medical profession, as it would in the aggregate cause more money to be paid to the profession than was at present being paid through the various friendly societies. His remarks were received with as forcible expressions of dissent as could be politely offered on such an occasion. Doubtless the feeling there expressed had been the subject of much deep consideration on the part of the speaker, and it is hoped that his influence will be used to aid the views of the profession. The other speeches were less controversial, if more amusing.

On the following day (Sunday) there was a special service in the Lady Chapel of the new Liverpool Cathedral, and members were given an opportunity of viewing the vast building operations which will result in the largest church in England built since the days of the Reformation. There was also special Mass at the Roman Pro Cathedral, and in the afternoon some of the guests paid a visit to Chester.

EUGENICS.

The Eugenic movement has been active in Liverpool, and during the past month two important meetings have been held and addresses delivered at the Liverpool Medical Institution. On May 3rd Mrs. D. Whetham, of Cambridge, addressed a meeting of the local branch of the Eugenics Education Society; Sir James Barr presided over a good attendance. "Heredity and Environment as Factors in Social Evolution" was the title of a very thoughtful and interesting address. Mrs. Whetham considered that the future of humanity was being moulded by the two forces of

heredity and environment, often complementary and indistinguishable in their effects, though in certain aspects and at certain times they appeared to work at the expense of one another. Improvements due to heredity were permanent, while those due to environment required constant expenditure of time and money to maintain them in existence. Mrs. Whetham pointed out the danger of increasing longevity by improved environment, while at the same time the birth-rate was decreasing. Dr. Bradshaw, in seconding a vote of thanks proposed by the chairman, said that while working for the improvement of heredity, he hoped that the ardour for improvement in the conditions of the masses would not be lessened. Mr. Damer Harrisson also spoke.

On May 10th, at the same Institution, Professor Paterson delivered a lecture on "The Child as an Asset to the Empire." In the course of his lecture he indicated that the institution of marriage was responsible not only for great benefits to mankind, but also for some frightful evils and anomalies. It united the fit with the unfit. The conditions of modern life, he considered, were not natural, but artificial. He thought large families were to be desired, because the educational advantages rendered boys and girls more fit to take their proper place among their fellows. He believed that the maternal instinct was declining. The modern habit of restricting families was not eugenic or scientific, nor in harmony with the laws of Nature, and would ultimately result in a deterioration in the breed. From the point of view of the individual, the family, and the empire, he considered this an important national question which should receive the serious consideration of every lover of his country. A hearty vote of thanks was accorded Professor Paterson.

THE TOXICITY OF LEAD.

At a meeting of the Society of Chemical Industries, held in the lecture hall of the Liverpool University, Professor Baley gave a lecture on the toxicity of lead. It was based upon experiments carried out with the view of ascertaining if lead in the form of volatile and toxic compounds was given off when white-lead paint made from the Dutch carbonate was used in the painting of rooms. The method used to determine this was by absorption of light. Photographs of the spectrum of a standard light were taken, and then the vapour placed between the source of light and the plate and the absorption of light in the spectrum recorded on a second plate. The beam of light was passed over the newly-painted object. It was found that lead compounds, when the white lead carbonate was mixed with 6 per cent. linseed oil, were given off, even at the ordinary temperature of a room. When "purex," the basic sulphate, or zinc white, was used, no metallic compound was given off. The volatile compound was readily soluble in water, and in the solution lead could be demonstrated with ease by ordinary chemical tests. The vapour, when distilled from the paint and frozen by means of liquid air *in vacuo*, became flocculent and formed a milky liquid on thawing. At the close of the lecture Professor Baley demonstrated his conclusions by experiments.

INVALID CHILDREN'S ASSOCIATION CONFERENCE.

The second annual three days' conference of the Invalid Children's Aid Association for the Care of the Crippled and Invalid Children of the Poor was held in Liverpool last week. Over 200 delegates from all parts of the country assembled by invitation of the Liverpool Children's Association. Before meeting for discussions on Thursday, May 25th, they visited the Bowring House Country Open-air Residential School at Roby. The sessions for the reading and discussion of papers were held at the Liverpool Medical Institution. The Lord Mayor welcomed the conference. Several interesting papers were read, followed by discussion. A visit was paid to the Country Hospital for Children at Heswall and to the Chatham Place Special School, Edge Hill. On Friday evening Sir William and Lady Bowring entertained the delegates at their charming residence at Grassendale.

MANCHESTER AND DISTRICT.

WOMEN DOCTORS AND THE ROYAL INFIRMARY.

SOME time ago strong complaints were made by the women medical graduates of the Manchester University that they were excluded from posts as resident medical officers at the infirmary. The Board of Management could not see its way to accede to their request to be rendered eligible for such appointments, though a special committee was appointed to consider the matter. It was, however, decided to institute a scheme by which one or more medical women might be appointed to non-resident posts with an honorarium attached. In this way they would be enabled to work in the women's medical and surgical wards and in the special departments for six months. It was also decided that certain existing non-resident posts could be thrown open to them. The council of the Manchester University has carefully considered the scheme, and in a report to the Court of the university states that it considers it will be of great advantage to the women graduates in the faculty of medicine, "securing for them the experience and knowledge of infirmary practice and methods which are of the greatest importance for medical practitioners to possess."

THE SALFORD ROYAL HOSPITAL.

At a meeting of the Board of Management of the Salford Royal Hospital a letter was read from Mr. E. T. Milner, stating that owing to continued ill health he regretted that he was obliged to tender his resignation of the post of honorary surgeon to the hospital. Mr. Milner was elected honorary assistant surgeon to the hospital in 1891, and was promoted to full surgeon in 1898; and in expressing its great regret at the cause of his resignation, the Board desired to convey to him its high appreciation of the valuable services which he had rendered to the institution since his appointment, and sincerely wished for his rapid and complete recovery in his new home at Castletown. It was further resolved that he be appointed honorary consulting surgeon to the hospital.

LONDON.

MEDICAL INSPECTION AND TREATMENT OF SCHOOL CHILDREN.

THE Children's Care Subcommittee reported to the Education Committee of the London County Council on May 31st that though it was not yet in a position to submit a complete scheme for the medical treatment of elementary school children, it was necessary that the question of extending some of the agreements beyond the present year should be considered. Amongst these were the agreements entered into with committees of local medical practitioners in Norwood and Wandsworth. The arrangements had worked very satisfactorily, and there was need for further provision for medical treatment in these districts.

The present scheme at Norwood provided for the treatment of 500 ear, nose, and throat cases, 800 eye cases, and 200 ringworm cases a year, upon which the Council had guaranteed in addition to the salaries of the doctors a total capitation payment amounting to over £200. In view of the provisional consent of the Board of Education to the extension of all agreements to a common date—December 31st next—the subcommittee advised that the arrangements with the Norwood local committee should continue as at present until that date, but that afterwards, subject to the consent of the Board of Education, it should be put upon a permanent basis, and should provide for the treatment annually of 1,320 ear, nose, and throat cases, 400 eye cases, and 100 ringworm cases, it being understood that if and when necessary 200 ringworm cases would be able to receive treatment in the year.

In the Wandsworth scheme provision had been made for the treatment of 500 ear, nose, and throat cases, 900 eye cases, and 100 ringworm cases a year, and a capitation payment of £150, exclusive of ringworm cases, had been guaranteed. Arrangements had been made for ringworm cases to be treated at the surgery of one of the doctors at an inclusive fee of £1 1s. a case. This agreement should also be varied to secure that 1,760 children suffering from ear, nose, and throat defects, and 440 children suffering from affections of the eyes should be treated in each year, and that the maximum number treated for ring-

worm yearly should not exceed 150. Both schemes at present provided for the employment of a nurse on six half-days a week to assist the doctors, and the subcommittee had come to the conclusion that the nurses should work full time in order to enable them to assist in "following up" and keeping teachers, local care committees, and doctors in touch with one another. Under these arrangements the Norwood scheme would cost £626, and the Wandsworth scheme £817.

The Education Committee agreed, subject to the approval of the Board of Education, to renew the agreements on a yearly basis on the foregoing terms.

The Probable Cost of Dental Treatment.

It was announced a few months ago[1] that a scheme for dental treatment of elementary school children in Wandsworth through the agency of the local committee of medical practitioners was in course of preparation. On May 31st the Education Committee received a report which explained the delay in the completion of the matter. It appeared that the Finance Committee objected because the cost, based on a total of 1,500 children a year, worked out at over 8s. a child, six cases being dealt with each session, whereas the cost of the Poplar and Deptford schemes was estimated at 4s. 3d. a case on the basis of ten cases a session. Further, in the Wandsworth scheme provision was made for the employment of an anaesthetist on one half-day a week, and of a nurse on six half-days, although no such provision was made in the previous proposals. The Finance Committee asked for an explanation of the necessity for the increased requirements in the present case, and to be informed whether it was proposed to employ an anaesthetist and a nurse at Poplar and Deptford, and in connexion with any arrangements for dental treatment that might be made in the future. The cost of dental treatment had increased with each of the three proposals put forward up to the present, and the Finance Committee asked for the fullest information on the subject, and whether the present case was exceptional or might be regarded as indicating the standard of expenditure upon dental treatment in the future.

The Children's Care Subcommittee stated, in reply, that in submitting the earlier dental schemes special emphasis was laid on the meagre information available for the guidance of the Council and the possibility of subsequent modification of the proposals then made being necessary. The estimate that ten cases a session could be dealt with was made upon the best information then available. The amount of work, however, varied considerably in each case, and the dentists already engaged found they were unable to put the children's mouths in sound condition if they were expected to deal with an average of as many as ten new cases a session in addition to those cases needing two or more attendances. After a system of dental treatment had been established permanently the condition of the children's mouths would almost certainly improve, with the result that much less work per child would be required. But for the present eight new cases a session should be regarded as the maximum number to be dealt with, ten being a perfectly reasonable number later on when the work was established on a permanent basis. The agreement with the committee of Wandsworth medical practitioners provided that from six to eight new cases a session should be taken, and the estimate of cost submitted to the Finance Committee was based on the assumption that the lower number would attend owing to the fact that, as parents did not yet fully recognize the need for dental treatment, there might be some difficulty at first in securing that full advantage was taken of the facilities afforded. Endeavours would be made, however, to maintain a standard of eight new cases a session, which would reduce the estimated average cost. Although the neglect of teeth was a serious detriment to health, there was considerable prejudice against treatment, and painful extractions were likely to prevent children from completing treatment. The subcommittee understood that, in difficult cases, an anaesthetic might be necessary; but upon reconsidering the question it had arrived at the conclusion that it would probably be well that cases of this nature should not be dealt with at dental treatment centres, but should be referred to hospitals. The subcommittee therefore withdrew the proposal to appoint an anaesthetist. With regard to the employment of a nurse, in the earlier schemes for dental treatment a capitation payment of 2s. was considered sufficient, because the nursing staff was employed in other work connected with medical treatment. The capitation payment of 2s. did not cover the expense of nurses who had to be specially engaged. Apparatus would also have to be purchased specially when the Council made use of institutions which were not already equipped for the work, as was the case at Deptford and Poplar. With the modifications outlined, the cost of the Wandsworth scheme would be reduced from 8s. to about 5s. 4d. a case, and this might be regarded as representing the maximum cost involved in making any further provision for dental treatment.

The Education Committee approved an agreement with the committee of the Wandsworth medical practitioners, which provided *inter alia* that on not more than six half-days a week children from 6 to 8 years of age, and, in special cases, children of other ages, should be treated; a payment of £50 per annum to be made for each dentist working one half-day a week, and a capitation fee of 2s. on the number of cases actually referred to be accepted by the local committee in full discharge of the expense incurred by them; the Council to appoint one dentist working on one half-day a week for the purpose of dental inspection in the Wandsworth schools and the selection of children for treatment, and the committee of medical practitioners to be limited to the appointment of not more than three dentists, who should be selected by the British Dental Association.

[1] British Medical Journal, March 25th, page 717.

Ireland.

[*From our special correspondents.*]

Conference of Charity Organization Societies.

At one of the general meetings of the conference of Charity Organization Societies held recently in Belfast, Dr. R. W. Philip of Edinburgh gave an address on antituberculosis dispensaries. He discussed the questions of the preventability, curability, infectivity, and endemicity of tuberculosis, and urged that, while it was absurd to segregate all cases, it was necessary to search out the open cases. Sanatoriums had done good, but a scheme of dispensaries in close relationship with the public health department, as in Edinburgh, was necessary also.

It was announced that in Belfast the Women's National Health Association of Ireland had decided to work in three directions—to promote school hygiene, to attack infant mortality, and to prevent the spread of tuberculosis and promote its cure. Professor Lindsay drew attention to the insanitary state of many of the primary schools; he was glad that school hygiene was put in the forefront. "It was a striking anomaly," he said, "that they devoted more attention to the sanitary condition of dairies, cowsheds, and even piggeries, than they did to the sanitary condition of their primary schools. They lodged their lunatics in palaces and taught their children very often in hovels." Dr. Lindsay also emphasized the enormous and far-reaching importance of the prevention of tuberculosis, and the study of infant mortality.

Dr. S. J. Maguire presided at a meeting of Section B, when an interesting debate took place on the Poor Law in Ireland, 1833-1911. The Chairman pointed out that the Old Age Pension Act had reduced old age pauperism no less than 50 per cent.; and the poor rate had been reduced by 2d. and in some cases by 4d. in the £. The National Insurance Bill would probably have a far-reaching effect in reducing pauperism.

Women's National Health Association.

The fourth annual meeting of this association was held at Ballsbridge on June 1st, under the presidency

of Lady Aberdeen. The annual report stated that the branches of the association numbered 150, with a membership of nearly 18,000. The expenditure on the various projects of the association amounted to over £4,000 during the year. Apart from the details of the report the most important matter brought before the meeting was a letter from Mr. Birrell in which he gave full credit to the association for the part it had taken in promoting the scheme lately sanctioned by the Treasury for the heating and cleansing of Irish primary schools. A letter from the Society of United Irishwomen was also read, stating that in the opinion of that society, affiliation with the Health Association would be unwise. At the end of the first day of the meeting Lady Aberdeen was unanimously re-elected president.

EMPLOYMENT OF TUBERCULOUS PERSONS.

At the last meeting of the Athlone Board of Guardians the Chairman said that the guardians of the North Dublin Union, in the face of the crusade all over the country against consumption, had hired out as a farm servant at Athlone a consumptive boy, and his state was discovered by the dispensary medical officer of the district. He was thereupon removed to an isolation ward in the workhouse. The Chairman proposed that the attention of the Local Government Board should be called to the matter, and this was carried. Subsequently a resolution was passed condemning the action of the guardians in the strongest possible manner. The above incident is of much importance from many points of view, but without accurate knowledge of the condition of the tuberculous patient in question it is hardly possible to comment on the incident fairly. The action of the Athlone guardians, more especially their direction that the boy should be removed to an isolation ward, seems, however, to arise from unnecessary panic. We sympathize with them in their indignation that a consumptive boy should be hired out without the employer being informed of his condition; but we hope their action does not mean that in future no tuberculous persons will be able to earn a living in Ireland.

BORSTAL INSTITUTE, CLONMEL.

The report of the Clonmel Borstal Institute states that 40 youths had been discharged during the last twelve months. Of these 1 had been committed to an asylum and 2 to prison. Of the remaining 37, 16 were discharged on expiration of their sentence and 21 on licence. Of the 16 whose sentence had expired 14 were doing well; and of the 21 on licence 19 were giving satisfaction to their employers. The medical report stated that the system resulted in a great improvement of the physical and moral condition of the inmates of the institution.

NATIONAL CHILDREN'S HOSPITAL.

At the recent annual meeting of the National Children's Hospital, Dublin, it was suggested that open-air balconies on a large scale should be constructed at the back of the hospital for the purpose of carrying out to some extent, at any rate, the principles of open-air treatment for the many tuberculous children under treatment in the institution. The suggestion has been taken up by the committee, and funds are now sought to carry out the project.

Scotland.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

SCOTTISH NATIONAL HISTORICAL EXHIBITION, GLASGOW.

A SERIES of lectures on "Callings for Women" are being held in the Conference Hall of the Scottish Historical Exhibition now open in Glasgow. The second lecture was delivered by Mrs. Scharlieb, who chose as her subject Medicine and Public Health, and pointed out that the lot of women medical students was now much more satisfactory in the medical schools than in the old days when the pioneer medical women were fighting their way. But even yet a woman student entering on a course of medical study should have perfect health of mind and body. Mrs. Scharlieb entered a protest against parents, guardians, school authorities, and missionary bodies permitting young women to commence so long and arduous a struggle without enough money to carry them through their student days and the early part of their professional career in ordinary comfort. In the foreign mission field there was scope for medical women, especially in India, where the women of the Hindu and Mohammedan classes were not able to avail themselves of male doctors. In general practice at home the lady medical practitioner was apt to be poorly paid for much hard work. She pointed out that women could now hold various civic appointments as sanitary inspectors, inspectors of school children, factory inspectors, and health visitors. She did not think that Mr. Lloyd George's scheme of national insurance against sickness and invalidity, with its present inadequate scheme of remuneration and subjection of the doctors to the friendly societies, would be acceptable to any respectable practitioner, male or female.

Correspondence.

THE BUTLIN DINNER.

SIR,—We have already received more than 200 names of those who intend to be present at the complimentary dinner which is to be given to Mr. Butlin at the Connaught Rooms next Tuesday, June 13th. As the committee proposes to seat the guests in parties at separate tables, it is desirable to have all names sent in to us at 429, Strand, not later than Saturday's post. A few tables will be reserved for late applicants, but all who wish to attend are requested to send in their names at once.—We are, etc.,

D'ARCY POWER,
W. GRIFFITH,
Honorary Secretaries.

London, W.C., June 7th.

THE VACCINATION DEBATE IN THE HOUSE OF COMMONS.

SIR,—Dr. Killick Millard's letter in the JOURNAL of June 3rd is an example of the length to which the thoughtful man will be carried when he allows himself to forget the hard lessons of practical experience. One is accustomed to hear the stock argument of the antivaccinist—the wonderful advance in sanitary efficiency—used in debate not only in the House of Commons, but also in Hyde Park. It is a new experience to see it employed by a medical officer of Dr. Millard's standing in the public health service.

Dr. Millard acknowledges that recent vaccination is a sure preventive, and quotes his own experiment as a proof of the faith that is in him. Having gone so far, he immediately branches off into the by-path along which one is prone to wander who is accustomed to consider disease almost entirely from the point of view of the epidemiologist or of the statistician. "To be quite frank," he says, "I have come to doubt whether the problem of preventing the spread of small-pox, under modern conditions, is rendered much, if any, more difficult by reason of the existence of a large proportion of unvaccinated persons." Now what does Dr. Millard mean by the "spread of small-pox?" Surely the disease has spread when the first case appears among the contacts. What possible effect can "sanitary efficiency" have in preventing the appearance of this case? Does a partial immunity acquired by vaccination have no bearing on this victim's chance of life? Is the problem of saving life from the ravages of small-pox easier in the unvaccinated than in the vaccinated community? That is the only problem for the medical officer of health in his dealings with small-pox. It cannot be too strongly emphasized that the only means at our disposal at the present time for "preventing the spread of small-pox" are (1) diagnosis and (2) vaccination, and it is on account of our neglect of the latter that the former occupies the position of primary

importance. To associate "sanitary efficiency" with the "prevention of the spread of the disease" is a misuse of language. The utmost that can be accomplished by sanitary efficiency of the highest degree is the *limitation* of the spread of the disease. Some lives can be saved. But others must be sacrified. Does Dr. Millard acquiesce in "facing this with equanimity"?

Besides Leicester, there are other towns which have neglected vaccination. Their sanitary efficiency may not reach so high a degree as that of Leicester, and yet they have not had much recent experience of epidemic small-pox. Perhaps the opportunity has been lacking. I would ask Dr. Millard if he has made allowance, in drawing his deductions from his Leicester experience, for the variations in virulence and in striking power which epidemic small-pox exhibits?

There is no doubt that the difficulty of limiting the spread of the disease is increased by the occurrence of the mild attack in the partially protected individual. But Dr. Millard seems almost to blame this unlucky victim for causing the outbreak—an attitude which might be compared with that of the man who thrashes his horse because it stumbles over a hole in the road. Would it not be more logical for the medical officer of health who believes in the efficacy of vaccination to take up the position that if every "contact" had the degree of immunity possessed by the "culprit" small-pox would be comparable to chicken pox in importance, his "problem" would entirely disappear, and we might be able to turn over our enormous small-pox hospitals to the more remunerative purposes foreshadowed in the National Insurance Bill?

Dr. Millard is unfortunate in selecting the case of Annie Levy, in the recent London outbreak, as an example of the "very slight, highly modified, and on that account unrecognized case." The case of Annie Levy could not be so described.

Dr. Millard's communication is open to the very serious criticism that in considering the possible occurrence of an outbreak of small-pox in an unprotected community he ignores the fact (perhaps one ought rather to say that he allows it to remain in the background) that small-pox mortality is frequently high and is always selective. This is the important point—in fact, the only point which it is our duty to emphasize when the question of vaccination or no vaccination is raised. What is to happen to *some* of those Leicester children *if they are attacked by small-pox?* Does Leicester possess another prophylactic? If she does not it seems advisable for her medical officer of health to leave platform quibbles about sanitary efficiency to the professional antivaccinist.—I am, etc.,

London, S.E., June 5th. A. F. CAMERON.

SIR,—The letter of Dr. Killick Millard has much interested me. Five years ago I read a paper, much on the same lines, before the Derby Medical Society. In spite of a good deal of "chaff" which I got from some of the members of that society at the time, I know, from conversations I have had with them since, that they (and I) have come to the conclusion that we have two alternatives before us. We must either copy the Germans and do thorough and efficient vaccination and revaccination, or we must abolish the Vaccination Acts and trust to sanitation, voluntary vaccination, and the common sense of the people.

The first alternative is impossible, as any one who has practised in the Midlands knows. Unless we move in the matter the second alternative will be enforced upon us, and it is surely better that we should put our early prejudices on one side and take the lead.

I am a thorough believer in the efficacy of vaccination, but not in the necessity of its being compulsory.—I am, etc.,

GEORGE RICE,
Consulting Physician to the Derbyshire Royal Infirmary.

Bideford, June 5th.

RENAL CALCULI AND CALCIUM METABOLISM.

SIR,—Dr. Benjamin Moore's letter[1] in reply to mine does not in any way lessen the value of my criticisms of his paper. In fact, they confirm what I stated, that a limited laboratory research will not upset the experience of years of good clinical observation. The writer treats me as inappreciative of pure chemical investigation—an accusation thoroughly unjustifiable, for I have for some years had a well-fitted laboratory, where careful quantitative analyses of the urine of all patients is made, both before and after the cure, and where all calculi, etc., are examined. He further insinuates that calculi examinations made by me are rough and incomplete. He is probably not aware that for thirty years I have done, outside medicine, a lot of petrographical and mineralogical work, and that therefore I have sufficient technical knowledge to be able to study the crystalline and amorphous components of a renal calculus in a proper way.

He then goes on to repeat remarks and criticisms concerning spa treatment and distilled water that are rather antiquated. Many years ago, in a state of physiological ignorance, I treated patients with distilled water, plain and gasified, very extensively, and with very poor results. They all complained that "I can't digest that water," or "That water lies so heavy on my stomach," or "That water makes me so flatulent," or "It blows me up" (even the ungasified). Dr. Benjamin Moore knows that the injection of a small quantity of distilled water into the blood is dangerous and even fatal, but that if he raises its salinity to approach the osmotic tension of the blood cells, it may be injected with impunity. Now did it ever occur to him that our organs of assimilation have sufficient vital selective or rejective power that they will not allow a stomach and intestine full of distilled water to enter the blood stream? When a person drinks distilled water, that water either takes up from the remnants of a previous meal sufficient soluble salts to give it the pass-by to the organs of absorption, or must await the arrival of a fresh meal to supply the requisite materials to make it tonic to the blood stream. Not only is distilled water objectionable but even injurious, for in its acquirement of the necessary osmotic tension to enter the blood, intestinal toxins will be taken up and added to the blood stream.

If we replace distilled water by a suitable mineral water, just a little hypo-tonic to the blood, then we have rapid absorption and rapid elimination, carrying with its excretion the toxines and waste products that it found in the blood or lixiviated from the tissues. This is indicated by the fact that even constipation may supervene when a drinker of Vittel water is consuming, say, four to six pints a day. Distilled water in half that quantity would often be a violent purgative.

I do not quite glean whether the prefixing of "St." to Vittel is done through ignorance or satire on Dr. Moore's part, but it is hardly justifiable in a scientific discussion, especially on such an important question of practical medicine.

As to the "non-chloride" reference he makes, let me ask him to think over these points. If you can reduce (instead of increase, as you do with most mineral waters) the amount of sodium chloride passing through the system, say from 12 down to 6 grams per diem, by a modified dietary simultaneously with the passage of a more dilute chloride solution through the kidneys, you allow those organs the equivalent of 6 grams of KCl energy to devote to the elimination of urates and other toxic substances.

As a moral I would conclude by saying the practitioner or clinical physician must utilize and appreciate the work of the laboratory man, but the laboratory man must check his results, and repeat or extend his researches when these are not confirmed by clinical experience—that is my conception of the practice of medicine.—I am, etc.,

Vittel, France, June 1st. H. J. JOHNSTON LAVIS.

[1] BRITISH MEDICAL JOURNAL, May 20th, p. 1210.

CONGENITAL APHASIA IN CHILDREN.

SIR,—I would like to endorse Dr. Rutherfurd's remarks (June 3rd, p. 1348) on Miss McCall's "Two Cases of Congenital Aphasia in Children." I also concluded that the first of these cases did not conform to this title, and I was doubtful as to the second. Unfortunately, there seems to be a good deal of confusion as to the exact meaning of the term "word-deafness," and as a result, quite a variety of cases are published under this heading, none of which can be considered as satisfactory instances of the condition. This confusion is accentuated when, in a recently published textbook, one finds the following given as "types of word-deafness": amnesic aphasia, monophasia, amnesic agraphia, inability to repeat what is heard and understood.

As a matter of fact, none of these are instances of true word-deafness. Some exact definition is required which can once and for all suitably describe the condition. Possibly "a case in which, the sense of hearing being otherwise normal, there is failure to appreciate the significance of spoken words" might meet the case.

I quite agree with Dr. Rutherfurd that congenital aphasia is distinctly rare, much more rare than congenital word-blindness. With one exception, all the cases brought under my notice hitherto have proved to be quite other conditions. The exception to which I allude, which gave brilliant results under the oral method of teaching, was reported in the *Transactions of the Royal Society of Medicine*, vol. ii, Part 1, Children's Section, page 157. I have another case now under observation which may ultimately prove to be of a similar nature.—I am, etc.,

London, W., June 6th. MACLEOD YEARSLEY, F.R.C.S.

SIR,—I can find no evidence that Dr. Rutherfurd has any special claim to utter *obiter dicta* on questions in the domain of diseases of children, and I do not propose to reply to his criticism of my cases of congenital aphasia, further than to say that I am perfectly aware of the comparative rarity of this condition. It was on this account that I thought the cases worth publishing. The nomenclature is that adopted by Dr. R. H. Crowley in his book, *The Hygiene of School Life*, in describing similar cases, as well as by other writers on the subject.—I am, etc.,

Cambridge, June 6th. EVA MCCALL.

SCHOOL TEACHERS.

SIR,—Dr. W. J. Rutherfurd's remark in his letter on "Congenital Aphasia in Childhood," that "school teachers are, as a class, perhaps among the most conservative and unreceptive section of the community," seems to me a singularly ungenerous general attack by a member of another profession. It comes with exceeding ill grace from a member of the medical profession, which suffers so much from this irresponsible kind of criticism, and betrays a state of mind the more to be condemned at this moment when doctors are coming into closer touch with the teachers and the schools. The *Speaker* remarks this week, in another connexion, that "accusations made against whole classes of persons are always unfair, because it is almost necessarily impossible to rebut them." There is no necessity to rebut Dr. Rutherfurd's criticism in detail. Personally I have extremely intimate and very friendly associations with teachers of all kinds. I count among my friends in that profession some of the most original and revolutionary thinkers and actors of the day. As a class, I expect they are not very different from other groups of persons.—I am, etc.,

London, W., June 8th. M. D. EDER,
Joint Editor of *School Hygiene*.

QUACKERY.

SIR,—The JOURNAL of May 27th, which deals largely with the different aspects of quackery, is at least interesting to the general practitioner. But should it remain simply a matter of interest? At the present time, when the medical profession is looming large in the eyes of the public on the question of the Insurance Bill, when Cabinet Ministers and members of Parliament are speaking sympathetically of the woes of the doctors and realizing their hardships, is this not the time for the admittedly powerful organization, the British Medical Association, to move in this matter of quackery and persuade the Government to introduce new legislation to amend the Medical Act so as to protect members of the profession against quackery of all kinds?—I am, etc.,

Stourbridge, June 5th. GEORGE J. DUDLEY.

AT a meeting of the Section for the Study of Disease in Children of the Royal Society of Medicine on May 26th Dr. G. H. Sutherland was elected president, Sir Watson Cheyne, Dr. H. D. Rolleston, and Mr. H. J. Stiles, vice-presidents, and Dr. T. R. Whipham and Mr. H. S. Clogg, honorary secretaries. Representatives on the library and editorial committees and a council of twenty-four members were also appointed.

Public Health AND POOR LAW MEDICAL SERVICES.

CONFERENCE OF METROPOLITAN PUBLIC HEALTH AUTHORITIES.

IT is seven years since the Public Health Committee of the London County Council reported that there was considerable want of uniformity in the enforcement by the sanitary authorities of London of their various statutory powers and duties, and recommended that a conference of these authorities be convened. On two days in July, 1904, a conference was accordingly held, and the interchange of views which took place resulted in considerable benefit. On the recommendation of Sir Shirley Murphy, the medical officer of health of the county council, a similar conference was held on April 6th last, and a detailed account of the proceedings has just been issued. Among the subjects discussed in 1904 were: Houses let in lodgings, inspection of places where food is prepared, water supply to tenement houses, and precautionary measures against measles and phthisis. Each of these questions was again the subject of debate at the latest conference, and in addition there was discussed the Notification of Births Act, 1907, and the provision of chapels of rest, apart from mortuaries, for bodies awaiting inquest.

Notification of Phthisis.—In 1904 the conference resolved that a system of voluntary notification of phthisis was desirable, and should be made general throughout London. In April last a further step was recommended, and it was resolved that the principle of compulsory notification should be extended to all cases of pulmonary tuberculosis, and that the establishment of tuberculosis dispensaries throughout London was urgently required.

Measles.—The last conference was held at the time when measles was epidemic in various parts of the metropolis, and after considerable discussion it was recommended that a better organization was desirable for the control of this disease in schools; that during a serious outbreak children under 5 years of age should be excluded from school attendance; that compulsory notification was desirable; that the cleansing of infants' departments and of the furniture, lower walls, and floors should take place once a week; that accommodation should be provided in the Metropolitan Asylums Board's Hospitals for urgent non-pauper cases, and that the school regulations should provide that all children from houses infected with measles should be prohibited from school attendance.

Domestic Water Supply.—The conference in 1904 expressed the opinion that a draw-off tap from the rising main and a sink should be provided on every floor of a tenement house, and a resolution in almost similar terms was carried in April last.

Notification of Births Act, 1907.—The discussion on this Act was concerned chiefly with the propriety of appointing women health visitors or women sanitary inspectors. With the exception of one of the representatives from Camberwell, all the speakers were in favour of these officials being appointed. There was some difference of opinion as to the desirability of a woman health visitor being also qualified as a sanitary inspector; but the prevailing view appeared to be that it was desirable she should have the double qualification.

Pollution of Food.—Dr. J. F. J. Sykes (M.O.H. St. Pancras) had little difficulty in persuading the conference to accept his resolution that it was desirable regulations should be made to limit the pollution resulting from exposure in improper manner in public places or adjacent to the public way of food and food receptacles. He pointed out the absurdity of closing in such shops as clothiers, furniture dealers, or stationers and leaving open those in which food stuffs were supplied, such as butchers, fruiterers, or fishmongers.

Mortuary Chapels.—On the question of providing chapels of rest, the conference came to the conclusion that it was desirable these buildings should be provided by sanitary authorities for bodies apart from those which were awaiting inquest, and, on the suggestion of Dr. McCleary (M.O.H. Hampstead) it was further recommended that all private mortuaries should be registered and regulated.

POOR LAW MEDICAL OFFICERS' ASSOCIATION OF ENGLAND AND WALES.

A COUNCIL meeting of this Association was held at 34, Copthall Avenue, E.C., on May 17th. Dr. D. B. Balding, J.P., presided, and there was a large attendance.

Cases.

The Honorary Secretary reported that with regard to the dispute between the Shoreditch Guardians and their district medical officers, matters were at a standstill. The Local Government Board had done nothing further, and there had been no fresh developments since the last council meeting. With regard to Dr. Milward of Cardiff, in answer to the representation of the council, the Local Government Board had arranged to send an inspector to investigate the matter on the spot.

Conference of Poor Law Officers.

The delegates of the association reported what had been done at the conjoint conference of Poor Law Officers at Norfolk House, the final meeting of which had recently taken place. Most of the medical recommendations of the association had been adopted by that conference, but there had been some important modifications at the final meeting, when the report of the whole conference was drawn up.

Part-Time Medical Officers of Health.

The delegates appointed to attend the recent conference of part-time medical officers, reported that it had been arranged to form a conjoint committee of representatives from the Poor Law Medical Officers' Association, the Public Vaccinators' Association, the Association of Postal Medical Officers, the Association of Factory Surgeons, and the Police Surgeons' Association. The council elected Dr. Withers Green, Dr. Lloyd Brown, and Dr. Major Greenwood as their representatives.

Public Vaccinators.

The Hon. Secretary reported that at the request of the Secretary of the Public Vaccinators' Association he had forwarded the opinion given by Sir Robert Reid on the question whether public vaccinators could be considered "officers" under the provisions of the Poor Law Officers' Superannuation Act. It would appear that that association was again investigating the question.

Annual Meeting.

The annual meeting of the association will be held on Thursday, July 6th, in the Council Chamber of the British Medical Association at 3 p.m. There will be no dinner this year, but tea will be provided for those attending the meeting.

"The Poor Law Medical Officer" Journal.

The Honorary Secretary reported that the first number of the journal of the association, *The Poor Law Medical Officer*, had been published on April 29th, and the editor asked permission to increase the number of pages of the next issue in order to insert therein the notices that were usually sent at this time to the members individually. He stated that a copy of the first number had been sent to all outdoor Poor Law medical officers in England and Wales. The council unanimously congratulated the editor on the useful character of the first number.

Mr. George Jackson.

A letter was read from Mr. George Jackson thanking the association for its assistance in his candidature for a seat on the General Medical Council, and assured it that he was doing his best to promote a meeting of the association in Plymouth in 1912.

The National Insurance Bill.

The Honorary Secretary said that the injury likely to be done by the National Insurance Bill to the whole profession reduced to insignificance any special injury to their service. As far as he could discover after a careful search through the bill, there were only two direct references to the Poor Law service:

1. It is ordered that boards of guardians, in giving relief to insured persons, should not take into account any sickness allowance not exceeding 5s. a week. So that in such cases the Poor Law medical officer might be required to afford medical services to those who were entitled to State medical attendance.
2. In Ireland it would seem that the doctors who were to work the Government scheme were essentially the Poor Law medical service of that country.

Medico-Legal.

DAMAGES AGAINST A BONESETTER.

At the Hull County Court on Thursday, April 27th, a female domestic servant, aged 20 years, sought to recover £100 damages for alleged negligence and unskilful treatment from John Blackbourne, a man stated by her counsel to have carried on business as a bonesetter in Hull for a number of years.

The evidence was to the following effect. The plaintiff stated that in October, 1909, she was employed near Hull as a housemaid at £19 a year. She was then aged 18. On October 18th she slipped when carrying a bucket down some steps and fell with her leg under her on the edge of the bottom step. Shortly afterwards, Dr. Gillespie, of Sutton, arrived and examined her ankle, which was severely sprained. He put her foot in cotton-wool bandages, and she went to bed. She remained there three days, during which Dr. Gillespie continued to attend her. On October 20th she went to her sister at Hull, in a cab. There Dr. Gillespie continued to visit her, following the treatment originally commenced, bathing the ankle in hot water and rubbing it with liniment. He also used light massage, and bandaged the ankle with cotton-wool.

On November 12th she and her sister visited the house of the defendant, who looked at the foot but did not handle it. He said that he could make it right, but that it would take some time. At this time her foot was considerably swollen, but not discoloured; the leg was quite straight, but too painful to put to the ground. The defendant took hold of her leg with both hands and twisted it, causing her great pain. He also knocked her heel up and fixed a splint on the outer side of the limb, stating that there was a fracture of the ankle. She visited the defendant every day for the first week, and kept on the splint in accordance with his instructions night and day, for at least a fortnight. When it was taken off the defendant removed it, and both the leg and the foot were very much swollen. Her foot was then discoloured. A day or two after the splint was taken off the son of the defendant blistered her foot, but did not say why. This was followed by a discharge of matter which continued for three months. The defendant also used an electric battery, and on one occasion placed her foot and leg up to the knee in a hot oven. Her foot became curled up and her leg would not go out straight. Later he placed splints again at the back of the leg to try and get it straight. Although the splint was kept on three days it did not make her leg straight. The son of the defendant took the splint off because, he said, it was fixing the hip. On a later occasion the defendant told her sister she ought to have something to put her leg straight, but that he could not do the stretching required, because he could not give an anaesthetic and use the knife.

The defendant afterwards blistered the hip because it had become fixed owing to the splint. Whilst she was under treatment she was given the following certificate by his son:

December 3rd, 1909. This is to certify that Edith Batchelor is suffering from a fractured leg and ankle and is unable at present to follow her occupation.

To convince herself and her sister about the break the defendant one evening placed the *x* rays over her.

On February 17th she became an out-patient of the Hull Royal Infirmary, and on March 14th an in-patient, and the wound healed splendidly. There was still a little swelling. On cross-examination she said she knew that the defendant was not a doctor. When she first went to him her leg was straight. He did not draw her attention to a grating noise when the ankle was moved.

The evidence of the plaintiff having been corroborated by her sister, Dr. Archibald Gillespie stated that when he found she had a severe sprain of the ankle-joint he applied elastic pressure to the ankle, bandaged it with cotton-wool, and sent the girl to bed. He attended her on fifteen different occasions, and at the time she dispensed with his services she was progressing very well, and would have been fit to resume her duties in about a month or six weeks. There was no indication of any fracture. In his opinion the use of a splint in such a case was improper, and the blistering was also improper. A splint might be used in a fracture even if a slight one, but the defendant was wrong in his diagnosis, and even if he thought there was a fracture he was wrong in using the splint, because the injury was then three weeks old.

At the adjourned hearing of the case on May 12th, evidence as to the impropriety of the treatment adopted by the defendant was given by Dr. Devine and Dr. Milburn. The latter had examined the plaintiff on July 8th, 1910, and found evidence of a severe sprain, but not of fracture.

Mr. Howlett, Senior Surgeon at the Hull Royal Infirmary, also gave evidence and produced *x*-ray photographs which had been taken of the plaintiff's foot, and which showed that there was no fracture.

The defendant, giving evidence on his own behalf, stated that he treated the defendant on the assumption that there was a fracture, and that that did not amount to negligence. He added that he had been unable to get a doctor to come and examine the girl and to give evidence on his behalf, though he had tried in Leeds, Sheffield, Grimsby, and Hull.

The judge having summed up, the jury returned a verdict for the plaintiff, assessing damages for the amount claimed.

Medico-Ethical.

The advice given in this column for the assistance of members is based on medico-ethical principles generally recognized by the profession, but must not be taken as representing direct findings of the Central Ethical Committee, except when so stated.

INTERFERENCE WITH THE PATIENT OF ANOTHER PRACTITIONER.

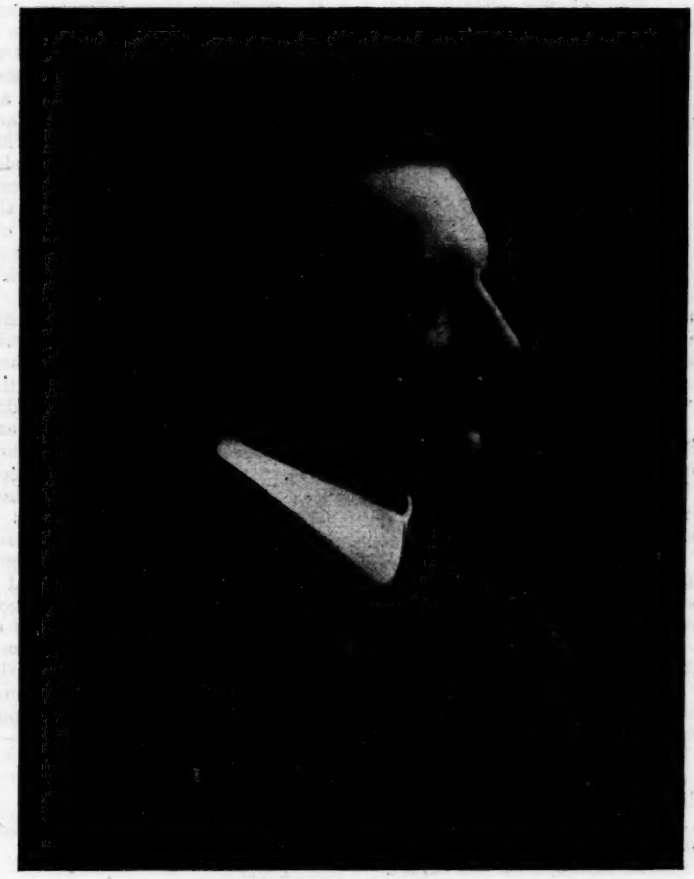
Veritas.—It is natural that a patient should wish to see her relative, and when the lady wrote to say that she intended to do so, A. ought to have suggested that he should meet B. By taking no step to secure this he may have appeared to consent to B. seeing the case alone. On the other hand, it may be said that B., when asked to see the case, should have suggested that A. should be asked to meet him. It is possible that he did this and that the patient's letter was written with this intention.

Obituary.

EDWARD H. DOUTY, M.D., M.C., F.R.C.S.

CANNES.

A WIDE circle of Cambridge men, especially medical graduates of the closing fifteen years of the last century, will have seen with sincere regret the notice of the death of E. H. Douty. He was born on December 17th, 1861, at Wilton, near Salisbury, and was the second son of Joel Douty, a wellknown schoolmaster of Netherhampton House, near Salisbury, and Mary, daughter of J. Donaldson, of Carlisle. He was educated at St. Edmund's School, Salisbury, and at King's College, Cambridge, which he entered as a choral scholar, with the intention of taking Holy Orders. In 1884 he was placed in the second class in Part I of the Natural Science Tripos, and, as his father died on the day he took his degree, he at once devoted himself to keeping his father's school, which was disposed of later as going concern. In 1885 he returned to Cambridge to work for a medical degree, supporting himself meanwhile by coaching. During the next twelve years he worked incessantly and with restless activity, becoming Senior Demonstrator of Anatomy in 1887, and Supervisor of Medical Students at King's and Emmanuel Colleges. At one time he was nearly elected a Fellow of King's with a view to his being made Dean. After qualifying M.R.C.S., L.R.C.P., in 1888, he was House-Surgeon in 1889 at the Middlesex Hospital, where he had worked in the vacations, and where his elder brother, Harrington, had had a brilliant career. He then began practice in Cambridge with the late Mr. Hyde Hills, and rapidly achieved a great success. Before this he had worked up an enormous coaching connexion, and shown himself a teacher of the highest ability. His engagements rapidly multiplied; he became after a contested election Assistant Surgeon and Surgeon-in-Charge of the Gynaecological Department, and was Lecturer in Midwifery in the University. In 1890 he performed what was probably the first cholecystotomy in East Anglia, and was supported at this operation by the presence of his senior, Sir George Humphry, whom he resembled in his impressive manner and powers of teaching. He was a member of the Cambridge County Council, and Surgeon-Captain Harwich Infantry Brigade. In 1897 he had haemoptysis after influenza and sent the sputum to be examined by the late Professor Kanthack, who, believing it to be from some patient unknown to him, said casually to Douty that it was teeming with tubercle bacilli. This ended a chapter in Douty's life and made him a wanderer over Europe; he was for a time a patient at Nordrach under Walther, and later settled in practice at Davos where he carried out the Nordrach treatment at the Belvedere Hotel. After some years he found the cold of Davos so unbearable that he decided to practise elsewhere, and finally settled at Cannes, for a time having rooms in Paris. His ambition had always been in the direction of surgical practice, and in 1906 he spent some months working in London and in spite of severe intercurrent illness obtained the F.R.C.S. He often thought of settling in London, and no doubt his extensive connexion with patients who had passed through his hands at Davos would have ensured him success, but his health was too uncertain to justify such a step, and he laid himself out for surgical practice in the Riviera where he was Surgeon to the Asile Evangelique, Cannes, and to the Queen Victoria Memorial Hospital, Nice.



DR. EDWARD H. DOUTY.

Photograph by [*J. Palmer Clarke, Cambridge.*

From a medical point of view he was remarkable on account of his numerous qualifications; indeed, apart from those in possession of honorary degrees, he was probably the best qualified man in the world. His degrees and qualifications included M.A., M.D. (1898), M.C.Cantab. (1908), M.D.Paris (1904), M.D.Lausanne (1901), Swiss Federal Diploma, Geneva (1900), M.R.C.P.Lond. (1904), and F.R.C.S. The foreign degrees were of course necessary to enable him to practise in Davos and Cannes. He had many interesting stories about his examinations, and he obtained the Paris degree in the face of very considerable difficulties. As a medical man he formed his opinions quickly, accurately, and seldom made mistakes. He had a facility for attracting and managing patients, and rapidly got into work. His contributions to medicine were comparatively few, and were confined to a few papers on the treatment of tuberculosis and of syphilis, and to reports on some surgical cases.

His surprising energy enabled him to triumph over constant and slowly increasing physical disabilities, and to accomplish an amount of work of which few realized the cost or the extent. A man of the world of extraordinary versatility, he was a connoisseur in music, literature, and in almost every form of art. There were, indeed, few subjects on which he had not clear and independent views. With a mind exceptionally virile, and little inclined to bow to authority as such, he had a shrewd eye for humbug in high places and a generous appreciation for merit in unlikely subjects. His striking personality exerted a direct and wholesome influence over his pupils and patients, especially the undergraduates at Cambridge between 1885 and 1897. No one was less like the traditional Don, but many owe much to his kindly and vigorous assistance at critical periods of their lives.

With his many-sided nature, Douty had numerous friends, such as the late J. W. Clark, J. H. Middleton, F. Whitting, Felix Cobbold, to mention some only of those who are dead. No doubt his outspoken and upright character raised opposition among those who failed to understand his aims and ambitions; though he was frank in his opinions and could hold his own, he bore adverse criticism without rancour. His old friend, E. H. Parker of Cambridge, writes: "He was a man of extraordinary personality and the best of companions, but perhaps the

most attractive part of his character was shown by his unostentatious work amongst the poor of Cambridge without reward. It was no uncommon thing for him to pass the night in the poorer part of the town, gratuitously attending the confinement of some poor woman. There was no amount of trouble he would not take for the poor or for a friend. His sympathy and personal magnetism were felt by all."

On September 21st, 1909, he married Kathleen, third daughter of the late Sir Frederick Wills, Bart., and of this exceptionally happy union there is a son aged 8 months.

The funeral took place on Friday, June 2nd, at the Church of St. Helen, Clifford Chambers, near Stratford-on-Avon, and was conducted by the Venerable Archdeacon William Cunningham, who had officiated at his marriage twenty months before. H. D. R.

PETER HUME MACLAREN, M.D.,

CONSULTING SURGEON TO THE ROYAL INFIRMARY, AND FORMERLY PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS, EDINBURGH.

DR. PETER HUME MACLAREN died at his residence in Edinburgh on May 20th, after several weeks of severe illness.

In his 75th year at the time of his death he looked a much younger man, and was conspicuously so in body and mind until within the past few years repeated serious illnesses left their mark upon him. He returned to Edinburgh last autumn in better health than he had enjoyed for long, and even when in spring there was a return of the former symptoms of hepatic disorder, it was hoped that his vigour of constitution would enable him to regain his health, but an attack of facial erysipelas so exhausted his strength that these hopes were disappointed.

DR. MACLAREN.

Photograph by] [*W. Crooke, Edinburgh.*

Dr. Maclaren was born in Edinburgh, and received his early education there by private tuition. He studied medicine in a golden age of the Edinburgh Medical School, and graduated M.D. in 1857, having passed his examinations before he was 21. After a period of work as House-Surgeon to Professor Spence in the Royal Infirmary, Edinburgh, and a year in an Assistantship in Forfar, he went to Berlin, and studied under Virchow, Traube, and Langenbeck, and always looked back upon this time with great delight.

On returning home Dr. Maclaren spent some fifteen years in most successful practice at Lasswade, where he laid the foundation of a connexion which, after his return to Edinburgh in 1877, rapidly brought him a large practice amongst the most influential members of the community. During his residence at Lasswade he was Surgeon in the Edinburgh County Militia; he retired with the rank of Surgeon-Colonel.

Shortly after his settlement in Edinburgh Dr. Maclaren was appointed Assistant Surgeon to the Royal Infirmary, in due course becoming full Surgeon with the charge of wards. Engaged in friendly rivalry with men whose names add lustre to their school and hospital, he maintained his position as a successful and popular clinical teacher. His best work was done during his occupancy of the charge of the lock wards, and his teaching on venereal disease was embodied in an Atlas, and in pamphlets, which in their time were recognized works of reference.

Dr. Maclaren was one of the last of the general practitioners of Edinburgh who obtained appointment in the hospital, and though no doubt his engagements in general practice set a limit to his surgical work, yet in virtue of that wider experience his teaching had for his students a value and distinction of its own. Many among his students have in after-life recognized how much of value for their practical work they got from the mature wisdom and shrewd judgement of their old teacher.

When Dr. Maclaren's period of office as Acting Surgeon ended he did not lose interest in the work of the infirmary and the advance of modern surgery, but as one of the managers rendered the hospital further valued service.

He was elected President of the Royal College of Surgeons of Edinburgh in 1894, and continued to occupy the chair for the customary period of two years. He was for many years one of the Examiners for the Licence and Fellowship of the College.

In 1900 Dr. Maclaren retired from his private practice, to the great and lasting regret of his numerous and attached patients, and during the ensuing years found abundant scope for work and influence on the boards of the Royal Infirmary, the Royal Hospital for Sick Children, and the Royal Asylum, of all which he was a highly respected and influential member. He also was a Manager of the Orphan Hospital, a home of residence for children of the working class. During many years he was the Principal Medical Officer of the Caledonian Insurance Company, a position for which he was peculiarly qualified by reason of his knowledge of men and affairs; this office he resigned in 1908. He acted also as Medical Adviser to the Commissioners of Northern Lighthouses.

In all the important and very various offices which, as has been seen, Dr. Maclaren held, his work was distintinguished by the exercise of balanced judgement and strong common sense, but perhaps he was seen at his best going out and in among his patients, much more than a doctor, "a guide, philosopher, and friend," whose entrance brought into the sick-room cheer and hopefulness.

His holidays he thoroughly enjoyed; he was a good shot, and in his later days became a keen golfer; on all occasions of social meeting he was the soul of good fellowship and the centre of mirth.

Tho news of his death will cause grief to his many former students and assistants throughout the world, and his memory will always remain with us.

CHARLES JOHN ROBERTSON-MILNE, M.D.,

MAJOR, INDIAN MEDICAL SERVICE.

MAJOR CHARLES JOHN ROBERTSON-MILNE, of the Bengal Medical Service, died of enteric fever at Barhampur, on May 22nd, 1911.

He was born on January 8th, 1872, educated at Aberdeen, where he took the degrees of M.B., C.M., in 1893, and subsequently the M.D., with honours, in 1909, and entered the I.M.S. as Surgeon-Lieutenant on January 29th, 1895, becoming Surgeon-Captain on January 29th, 1898, and Major on January 29th, 1907. While in military employment, he served in the Tirah Campaign of 1897–8, including the actions of the Sampagha and Arhanga passes; the reconnaissance of the Saran Sar and actions of November 9th and 11th, 1897; the operations against the Khani Khel Chamkanis; and the operations in the Bazar Valley, December 25th to 30th, 1897; and received the medal with two clasps.

Entering civil employment in Bengal in 1900, he served successively as Resident Physician of the Calcutta Medical College Hospital, as Civil Surgeon of Backerganj, and as Deputy Sanitary Commissioner of Western Bengal. He was then placed on special duty to conduct an inquiry into cerebro spinal fever, the outcome of which was an

interesting little monograph, *Report on Epidemic Cerebro-spinal Meningitis in India*, Calcutta, 1906. For the past five years he had been Superintendent of the Central Lunatic Asylum for natives at Berhampur, better known to English readers as Murshidabad, the old capital of the Mussulman kingdom of Bengal. He was also the author of the *Bengal Lunatic Asylums Manual*, Calcutta, 1910, and contributed the chapter on insanity to the last edition of Lyon's *Medical Jurisprudence for India*.

Major Milne's father was also an officer of the Indian Medical Service—Surgeon Robert Moir Milne, who died of cholera at Benares on August 11th, 1875, after less than ten years' service. Major Milne had lately been much affected by the unexpected loss of his wife, who died in Edinburgh on February 22nd, 1911, and, when attacked by a severe type of enteric fever, he had no desire or power to make a struggle for his life.

The Bengal Medical Service has been hit very hard by the hand of death in the last few months, having lost four officers, all much above the average in attainments and reputation: Colonel J. A. Cunningham on December 31st, Lieutenant-Colonel J. W. T. Leslie on March 27th, Major G. Lamb on April 11th, and now Robertson-Milne.

Universities and Colleges.

UNIVERSITY OF OXFORD.

Degrees.

THE following were among the degrees conferred on May 27th:

M.D.—A. S. MacNalty, H. L. Tidy.

Lectureships.

Mr. A. P. Dodds-Parker, of Magdalen College, has been re-appointed University Lecturer in Applied Anatomy for three years from October 10th, 1911; Dr. W. Tyrrell Brooks has been appointed to the Litchfield Lectureship in Clinical Medicine, and Mr. D. L. Chapman, of Jesus College, has been approved as an Examiner for the Diploma in Public Health.

UNIVERSITY OF CAMBRIDGE.

THE following degrees have been conferred:

M.D.—H. P. Crampton, C. Roper.
M.B.—C. K. McKerrow, K. Pretty.
B.C.—C. K. McKerrow, J. Van Schalkwijk.

UNIVERSITY OF EDINBURGH.

UNIVERSITY COURT.

Lectureship in Genetics.—At a meeting of the University Court on May 18th, it was resolved, on the recommendation of the Senatus, to institute a Lectureship in Genetics, and Mr. A. D. Darbishire, M.A., was appointed to the office of Lecturer, and it was arranged that a course of six lectures on Heredity should be given by Mr. Darbishire during the current summer session, the course to be free to all matriculated students.

Examiner in Surgery.—Mr. A. A. Scot Skirving, M.B., F.R.C.S.Edin., was appointed an additional Examiner in Practical Surgery.

Grants for Research.—Grants recommended by the Senatus from the Earl of Moray Endowment for the promotion of original research were approved.

Rectoral Election.—The next rectoral election was fixed for October 28th, 1911. The candidates are the Earl of Crewe and the Earl of Minto.

Recognition of Teachers.—Recognition was granted to the following extra-academical teachers in the Natal University College for purposes of graduation in medicine: (1) Professor J. W. Bews (botany); (2) Professor R. B. Denison (chemistry, certificate to include elementary inorganic and practical inorganic and elementary organic and practical organic).

Students' Representative Council.—Alterations proposed by the Students' Representative Council in the constitution and laws of the Council were approved.

Professor Chiene.—The gift of a bronze replica of a silver medallion, presented to Professor Chiene by his old house-surgeons, was accepted with thanks. A letter from the honorary treasurer of the Chiene Portrait Fund was read, intimating that the Executive Committee of the fund had resolved to hand over to the university the balance of the fund, amounting to between £310 and £320, to form a fund to provide a bronze medal, to be called "The Chiene Medal in Surgery." The court resolved to accept administration of the fund.

THE report of the Nightingale Fund for 1910 shows that the year ended with a satisfactory balance on the right side, and that nurses trained at the school of the fund at St. Thomas's Hospital continue to carry off a considerable proportion of the vacant appointments at different institutions. The report also records the retirement of Dr. Sharkey after eighteen years' valuable service to the fund as lecturer on medical subjects and in other capacities.

Medical News.

THE dinner of the Durham University Medical Graduates' Association will be held at the Imperial Restaurant, Regent Street, W., on Saturday, June 17th. The President, Dr. J. Inglis Parsons, will take the chair at 7.30 p.m.

THE American Breeders' Association, which has its head quarters at Washington, has recently turned its attention to the consideration of questions relating to the deterioration and improvement of the human race by the neglect or adoption of methods practised in the breeding of animals. The association includes three sections, which respectively concern themselves with the breeding of plants, animals, and men. President Jordan, of Stanford University, is the chairman of the section of eugenics. This section has four standing committees—one on the heredity of insanity, of which Dr. Adolph Meyer, of the Johns Hopkins University is chairman; one on the heredity of feeble-mindedness, presided over by Dr. A. C. Rogers, Superintendent of the Minnesota Institution for the Feeble-minded; one on the heredity of epilepsy, of which Dr. M. W. Ballard is chairman; and one on the heredity of criminology, of which the chairman is Dr. Charles R. Henderson, of the University of Chicago. The Association publishes a quarterly journal entitled *The American Breeders' Magazine*.

A MOST enjoyable entertainment took place at the Natural History Museum, South Kensington, on the evening of May 30th, when the Royal Society of Arts held a *conversazione* for some fifteen hundred guests. The chairman, Sir John Cameron Lamb, C.B., C.M.G., and other members of the council received their visitors in the central hall, where an excellent selection of music was played by the band of the Royal Artillery, whilst a vocal and instrumental concert was given in the shell gallery, and a miscellaneous programme of dancing, recitations, and music was provided in the fish gallery under the direction of Mr. Patrick Kirwan. A remarkable feature of the reception was the large proportion of visitors from the overseas dominions to be observed among the guests, who included the Raja Dhiraj of Shapura, the Raj Kumar Sardarsing of Shapura, the Sirdar Charanjit Singh of Kapurthala, and the Tikka Saheb and Saheba of Nabha; whilst the Portuguese Minister, Sir Herbert Maxwell, Colonel Sir David Bruce, Judge Rentoul, Professor Luigi Ricci, and Sir William Crookes were amongst those who put in an appearance during the course of the evening.

THE spring dinner of the Glasgow University Club in London took place at the Trocadero on May 26th, and brought together about 150 members and guests. The chairman of the evening was Professor J. M. Thomson, now of King's College, who in the course of a sketch of the progress of the university claimed that his connexion with it probably constituted a record, for having been born in the Old College buildings he entered the university on the day of his birth, March 7th, 1849. The Universities of Oxford and Cambridge were of a special kind, and did their work admirably, but otherwise education was much better carried on in Scotland than in England. In the former country there was close relationship between the high schools and the universities. The latter were founded for the people, appealed to the people, and kept themselves in close contact with the people down to the peasant on the land. The small band of men who founded University College in Gower Street included many Scotsmen, and it was intended to be a Scots college in London. For a plan they unfortunately went to Edinburgh instead of Glasgow, and but for this fact King's College, to which he now belonged, would probably never have been called into existence. It was a pity that the old B.A. degree at Glasgow in languages and philosophy had been abolished; it only required two years' work, and was a much better preparation for after-studies than a matriculation examination. The correlation between the medical faculty and the Royal Western Infirmaries was a matter for congratulation. So, too, was the correlation recently sanctioned between the university and the West of Scotland Technical College. Professor Thomson also mentioned that the Glasgow Club in London now numbered over 300 members. During the course of the evening Dr. C. L. Hawthorne proposed a toast to Dr. W. Walton Don, who is about to retire from the office of treasurer after having rendered seven years' service. The toast having been duly honoured was suitably acknowledged by Dr. Don.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

UNGUIS asks what is the explanation of chalky whiteness of the finger-nails, and whether any significance is to be attached to it. In the case in which he is interested—a young man in good health—all the finger-nails are affected; some have large patches, in others almost the whole nail is chalky white. The nails are not brittle, and, except as to colour, seem normal. The condition makes them conspicuous across the room.

COMPENSATION FOR LOSS OF LAST PHALANX OF THE THUMB.

RICHMOND writes: I have removed the necrosed ungual phalanx of the left thumb in a woman suffering from whitlow. At the present time, three months later, although there is a certain amount of recently generated solid where once the ungual phalanx existed, yet there is numbness, tenderness and a distinct loss of power to hold needlework, etc., between the thumb and the fingers. Piano playing also is impossible. The questions I am asked are:—(1) Whether eventually the thumb will recover entire use? to which I answer, No. (2) The amount which should be demanded from the employers, the poisoning having admittedly occurred from her occupation? Her salary was 16s. weekly, and the employers were a noted charitable institution.

ANSWERS.

FER DE LANCE.—*Lachesis lanceolatus* is the name of the Fer de lance, but it is also sometimes referred to as *Bothrops lanceolatus* or *Craspedocephalus lanceolatus*. The mocassin, or copperhead snake, is called *Ancistrodon contortrix*, but may be referred to as *Trigonocephalus cenchris*. Both belong to the same subfamily as the rattlesnakes (*Crotalinae*), but neither possesses a rattle.

MANCHESTER.—If certifiable as imbecile the case might be received at the Royal Albert Institution, Lancaster. Terms can be obtained from the Secretary, Mr. S. Keir, Lancaster. If not so certifiable, admission might be obtained to (1) Princess Christian's Farm Colony, near Tonbridge, Kent. Particulars from Miss Kirby, Secretary, National Association for Feeble-minded, Denison House, Vauxhall Bridge Road. (2) Sandwell Park Institute, near Birmingham. For terms apply to the Secretary, National Institution for Persons Requiring Care and Control, 14, Howick Place, Westminster, S.W. Industrial training is given in all these institutions.

THE EVIDENCE OF RECENT SEVERE ILLNESS AFFORDED BY THE NAILS.

DR. NORMAN FLOWER (Yeovil) writes: With regard to the letters of Dr. Davis and Dr. Richard Kay on the above subject, Sir Dyce Duckworth records in the *St. Bartholomew's Hospital Reports*, 1909, that the transverse furrow was first described by M. Beau, physician to the Hôtel-Dieu in Paris more than forty years ago, who regarded it as trustworthy evidence of past illness. We now know that this condition occurs commonly after illnesses of ordinary severity, but this is not the case with the colour disturbance illustrated in my communication of April 15th, which takes the form of broad white lines lying across the axis of all the nails. These are the only real indication that the patient was at one time at death's door. Moreover, the nature of the nails on the proximal side of the white lines is of a different character to the rest, being quite soft and resembling those of a child—a fact which is not so apparent when only the furrowing occurs. It is evident that the trophic disturbances in the nails described by Dr. Davis and Dr. Kay in scarlet fever are directly analogous to those occurring in the skin during the period of desquamation.

LETTERS, NOTES, ETC.

EXTRACTION OF CATARACT IN THE CAPSULE.

MAJOR G. H. FINK, I.M.S.(Ret.) desires it to be stated that the two communications from him of which we published a summary on page 1216 of our issue for May 20th, were in answer to remarks made by Captain Lister, I.M.S., and by a correspondent signing herself Amy Shepherd, and were dated April 14th and 15th.

THE EFFECT OF SALVARSAN UPON TREPONEMA PALLIDUM.

DR. ARTHUR LOXTON (Birmingham) writes: The memorandum of Dr. Andrew Balfour in the JOURNAL of May 20th is exceedingly interesting, and may possibly exert a powerful influence upon our methods of using the new salvarsan. Arguing from Dr. Balfour's laboratory observation, one would expect to obtain more permanent results from intramuscular or subcutaneous than from intravenous injection. After intravenous injection salvarsan appears to be eliminated in a few days, arsenic rarely being found in the urine after the fifth day, while after other methods of injection it has been found for considerable periods. In the *Münchener medizinische Wochenschrift* for March 28th Dr. Isaac of Berlin reports that he has treated patients with marked success by repeated injections of small doses of salvarsan. The patients continue their work as usual, and once a week receive a subcutaneous injection of 0.1 gram or 0.2 gram salvarsan suspended in oil of sweet almonds. Salvarsan is now put up in ampoules of 0.1 gram and 0.2 gram of the drug. This system is being tried at the Birmingham Skin Hospital, and I hope to report results shortly.

THE TREATMENT OF CLEFT PALATE.

MR. R. W. MURRAY (Liverpool) writes with reference to the meeting of the Section of Surgery of the Royal Society of Medicine, held on May 9th: The chief reason for this meeting being held was that a definite answer might be given to the oft-repeated question, At what age should a cleft of the palate be closed—in early infancy or in early childhood? If during early infancy, then the only way in which the cleft can be closed is by means of a turn-over flap (Lane's operation); if, on the other hand, the operation be postponed until early childhood, the cleft may be closed by paring the edges and bringing them together in the middle line (Langenbeck's method). As the main object in closing the cleft is to enable the child to speak distinctly, then surely the question as to which is the better method is entirely a matter of evidence, and the witnesses must be the children operated upon and not the surgeons who performed the operations.

At the meeting a multitude of witnesses were brought forward by several surgeons (more especially by Mr. James Berry) who favour operating during early childhood; and it was most interesting and encouraging to hear how admirably they bore testimony in favour of Langenbeck's method, by repeating clearly and distinctly such words as "sixpence," "cup and saucer," and even "British constitution." Unfortunately the surgeon, who has for years so conspicuously and so persistently advocated the flap operation during early infancy, for some reason or other did not think it desirable to bring forward even half a dozen children as witnesses out of the many hundreds, possibly thousands, of cases he must have operated upon. Certainly two or three cases were shown in which the cleft had been closed by the flap method during infancy, but articulation was so imperfect that the children could with difficulty make themselves understood, and later on will surely find it hard to earn a livelihood.

For some years I have been interested in the treatment of cleft palate, and speaking from considerable clinical experience can say that a well-formed and freely-movable soft palate is essential for clear articulation. Now if a cleft of the soft palate be closed by means of a turn-over flap, not only are the muscular arrangements of the palate ignored, but a raw surface is exposed which must heal by granulation and contract, so resulting in a soft palate too short, too tight, and incapable of movement, since it is largely composed of scar tissue. If, on the other hand, the operation be performed during early childhood, then the edges of the cleft may be united in the middle line, and a well-shaped and freely-movable soft palate fashioned, containing merely a thin central line of scar tissue.

I regret very much that I was unable to take part in the debate, for I was most anxious to cross swords with those who advocate operating during early infancy, but I had to return to Liverpool with the four children I had brought with me. However, we all heard the children speak, and I firmly believe that, had a vote been taken of those surgeons present, an overwhelming majority would have been obtained in favour of delaying operation until early childhood.

I went to the meeting anxious "to learn what is true, in order to do what is right," and I know now it is *true* that when a cleft of the palate is closed during early infancy by the flap method the child will never be able to speak distinctly, and I know it is *right* to delay the operation until early childhood and close the cleft in the ordinary way, for the child may then speak in a perfectly natural manner.

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WHERE CHEMISTRY AND MEDICINE MEET.*

BY ARCHIBALD E. GARROD, D.M., M.A.OXON., F.R.C.P., F.R.S.,

PHYSICIAN, WITH CHARGE OF OUT-PATIENTS, TO ST. BARTHOLOMEW'S HOSPITAL; PHYSICIAN TO THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET.

THERE was a time, not so very long ago, when this country could challenge comparison with any other as regards the number of able and zealous workers who were engaged in the study of the chemical aspects of disease. Those were the days of Prout, of Alexander Marcet, and of Bence Jones, and others whose names occupy distinguished places in the roll of honour of British medicine, and who, following in their footsteps, carried on and extended their work. Of these, the veteran Dr. Pavy is still among us, and hands on the tradition to younger generations. Yet it must be admitted, with regret, that of recent years we have tended to fall behind, and to leave to investigators in other lands in which the organization of research has been more developed than with us, the task of unravelling many of the problems which await solution. Our workers in this field are not less zealous than their predecessors, but their numbers are fewer in proportion, and the development of fresh fields of pathological study has opened out many attractive lines of investigation in other directions. Although the profession at large, in this country, gives an ungrudging recognition to the importance of chemical pathology, it prefers for the most part to admire at a distance, and to a medical audience a discourse on this subject is not always acceptable. This is in part the fault of the labourers in the field, who have somewhat neglected the task of exposition. If the workers are few, textbooks are still fewer, and the results obtained are seldom discussed in our medical societies. Yet in these days of press activity the omission to add largely to the bulk of the writings with which the busy medical man is expected to cope will be regarded leniently as a vice which makes a near approach to virtue. May the scantiness of such writings in our own language serve as an excuse for my incursions into the chemical field, in response to the invitation to address you with which I have been honoured.

In few branches of scientific investigation have greater advances been made of recent years than in that which deals with the chemistry of living things, but it is no easy task which he enters upon who sets himself to investigate the metabolic processes at work in the animal organism, and the derangements which these processes undergo in disease. It may be compared with that which confronts a man who wishes to study the manifold activities of a great chemical factory which he is forbidden to enter. He is able to examine the raw materials which are brought to the factory, the finished products which emerge from it, and the waste substances which are washed away in the drains, escape from the chimneys, or are thrown upon the dust heap. Upon such examinations, supplemented by an occasional peep through the windows, he must rely for his information as to what goes on within.

Nevertheless, with no better means at their disposal, chemical physiologists and pathologists have found out much about the chemistry of the human body, and are year by year making fresh incursions into the vast territory of the unknown.

All such knowledge is of importance to us as practical medical men. It enables us to gain clearer ideas of many problems which confront us, it arms us with new weapons for our fight with disease, and corrects many misconceptions which have been handed down for generations, and which tend to warp our practice.

It is of the general bearings of this increased knowledge upon our science and art that I propose to speak this afternoon, and I hope to be able to show that no special chemical training beyond that which forms an essential part of medical education is necessary for the appreciation of its import, whatever may be the case as regards the more technical details.

I cannot more fitly begin my discourse than by referring briefly to the immense advances made in the study of that great group of complex compounds in which all albuminous substances are included. The proteins are the essential constituents of living organisms, and it is upon their properties that the very possibility of life depends. Thanks to the labours of a body of indefatigable workers, among whom the great German chemist Emil Fischer stands pre-eminent, our knowledge of proteins is no longer limited to a knowledge of their ultimate compositions, of the various temperatures at which they coagulate, and other chemico-physical data. Their complex molecules have been taken to pieces, and it has been shown that they are built up of a number of comparatively simple fractions which can exist as independent chemical substances, and which, widely as they differ in structure, have this in common that they belong, almost without exception, to the group of amino-acids. Some of these fractions of proteins are old friends, long known as occasional constituents of the excreta, such as leucin, tyrosin, and cystin, in which last the sulphur of proteins resides; and from others equally familiar excretory products or products of putrefaction are derived, such as indol from tryptophane, cadaverin from lysin, and putrescin from arginin. In the elaborate protein molecules these various fractions play parts which may be compared with those played by atoms in simpler chemical molecules, and they are so numerous, and are capable of such various groupings, that from them may be formed an almost infinite variety of compounds of the protein class. Some proteins are peculiar in that from them certain of the primary fractions are absent. Thus gelatin contains no tyrosin, and zein, the protein of maize, no tryptophane. It is now believed that in the process of digestion the protein molecules undergo much more complete disintegration than used to be supposed, and that instead of being absorbed as proteins and incorporated as such in the organism which digests them, they are taken to pieces more or less completely, and are reconstructed to form the proper tissue proteins of the new host.

Even if there were no other grounds for this belief, it could hardly be avoided in view of the demonstration by means of the delicate ultra-chemical precipitin reactions, that the proteins of which the tissues of animals are built up are not identical for the different species, and that the more nearly two species are related, the more closely do their proteins approximate.

Seeing that the boundaries of species are not rigid in any strict sense, it follows of necessity that similar but even more subtle differences must exist between the tissue proteins of individuals of a species. The notion must be abandoned, once and for all, of a multiplicity of structure and form, but a uniformity of chemical process throughout the animal kingdom.

Such considerations, although they appear at first sight to have a merely theoretical interest, have a real practical importance for us, and this altogether apart from the medico-legal applications of the precipitin test.

It will be evident that the optimum diet of a man must contain not only a sufficiency of protein in general, but must also contain an adequate supply of each individual fraction of the protein molecules which enter into the structure of the human tissues.

As you well know, the balance of the nitrogen in the excreta against the nitrogen of the food affords a measure of the quantities of protein broken down and built up on a particular diet. When the output of nitrogen exceeds the intake, this shows that tissue breakdown is in excess of reconstruction, whereas when active reconstruction is in progress the intake of nitrogen exceeds the output in the urine and faeces.

Again, it is a well-established fact that an even nitrogen balance may be maintained upon diets of very different protein content, and may also be maintained upon a diet much poorer in protein than that which is usually taken by healthy men, and which represents the level instinctively arrived at by mankind, civilized and uncivilized alike.

Yet it does not follow from this fact that the reduced diet, although it maintain the nitrogen balance, is an optimum diet, and more probably we need to take habitually excessive quantities of food proteins, in order that we may get from our diet all that we need of each individual fraction of the protein molecules.

* An address delivered to the Gloucestershire Branch of the British Medical Association.

You will remember the stone bricks which were so popular as children's toys some years ago. They were of different colours, shapes and sizes, and with them could be constructed a variety of buildings of different kinds—houses, churches, temples, and the like. However, if the bricks of some particular kind had been lost, as was often the case, although abundance of others were available one could not construct some special kind of building which was wanted. So it is with protein reconstruction. A protein which has some special deficiency, such as gelatin which lacks the tyrosin bricks, does not form a satisfactory substitute for other kinds of protein foods. The organism does not need protein alone, but demands tyrosin as an essential building stone for its tissues, and the same is true of other fractions also. According to the more modern views, which are associated with the name of Folin, large quantities of the ingested proteins are merely stripped of their nitrogen and burnt as fuel, just as fats and carbohydrates are, and from this excess we may suppose that the organism readily picks out the particular fractions which it needs, and in the proportions necessary for the reconstruction of its tissues, for which purpose only a small fraction of the total supply is utilized.

There is another practical lesson to be learnt from what has gone before—namely, that the more nearly the proteins of the food approximate in structure to the tissue proteins, the more completely satisfactory and easy of utilization will they prove to be. This may be supposed to be of special importance to the newborn animal whose digestive ferments are as yet only imperfectly developed; and accordingly Nature has provided, in mother's milk, an optimum diet at that period of life. This is, perhaps, the reason why no substitute is as good for an infant as mother's milk. We may, with care, rearrange the constituents of cow's milk so that its several constituents are represented in proportions almost exactly similar to those in which they occur in breast milk; but however completely we may humanize cow's milk, it is not in our power to make it human, nor to give to its proteins the peculiar stamp of specificity.

At first sight this appears to be an argument for cannibalism; but it is not really so. As the infant grows into the child, and the child into the man, he is quite able to dispense with these slight advantages which may be of inestimable value in his earliest days of life. Even those animals which are by instinct and practice vegetarians, who reconstruct their tissues from proteins which are not even of animal kinds, are nourished with maternal milk at the beginning of their lives.

It is in the proteins of the tissues that chemical specificity and individuality resides. The simpler molecules of fats and carbohydrates admit of no such range of variation. Glucose wherever met with is one and the same substance, and, although the composition of the fats of animals varies in different species, it is probable that these variations are mainly due to differences of diet. When an unusual fat is administered to an animal it is stored as such in its adipose tissues.

The clearer insight gained into the structure of proteins also throws a flood of light upon many urinary problems. We see that various abnormal constituents of urine, the origin of which was previously quite obscure, are in reality protein fractions which have escaped destruction in the ordinary way, or products of the incomplete breakdown of such fractions.

The evidence available tends to show that each individual protein fraction follows its own path of breakdown its destruction being effected step by step by the action of enzymes, a fresh enzyme taking up the work where another has left it. Thus the study of the rare and interesting congenital anomaly of metabolism known as alcaptonuria has thrown much light upon the ordinary fate of the aromatic protein fractions tyrosin and phenylalanin; whereas in the sister anomaly, cystinuria, the cystin fraction of proteins in part escapes the fate which normally overtakes it, and is excreted unchanged in the urine. Moreover, it appears that the derangement of the catabolism of one such fraction does not necessarily involve the implications of others also.

On the other hand, the ductless glands appear to exert a controlling influence upon metabolism as a whole, as witness the stimulation thereof which results from excessive thyroid activity in exophthalmic goitre, and the slackening which characterizes the converse malady, myxoedema. It would seem that the thyroid secretion has a power of activating many enzymes.

The several metabolic paths for different substances, which have doubtless been shaped by evolutionary influences, are in the main permanent routes, and it is probable that when a patient excretes an abnormal product, or abundance of a product normally excreted in mere traces, this is not due to the deflection of the metabolic paths into new and abnormal lines, but rather to arrest at an incomplete stage of catabolism, or to excessive calls upon mechanisms but little utilized in health.

The fact that the organism has provided itself with means of defence against certain chemical poisons with which it is often called upon to cope, is not opposed to, but is rather confirmatory of, this view.

The protective mechanisms, which recall the more subtle defences, as yet beyond the ken of the chemist, by which the organism is guarded against bacterial poisonings, are of no small medical interest. In principle they all agree more or less closely; the harmful substance is rendered harmless by combination with some intermediate or final product of metabolism, and so combined is got rid of in the excreta. The metabolic product made use of plays the part of a watchful policeman, who, finding the toxic substance loitering in the organism, presumably for an unlawful purpose, takes it by the arm and conducts it outside the door.

It is a well-known fact that when benzoic acid is taken by the mouth hippuric acid is excreted in the urine. This is an example of such a protective arrangement. Benzoic acid, like most aromatic compounds, has toxic properties, whereas hippuric acid is relatively inert. Hippuric acid is a product of the combination of benzoic acid with glycine, the simplest of the primary protein fractions and presumably a product of metabolism. Some other aromatic compounds of similar nature to benzoic acid are similarly combined with glycine and excreted, for example, salicylic acid, which appears in the urine as salicyluric acid.

There is an alternative and even more important method of dealing with aromatic poisons, namely, by combining them with the sulphuric acid which is formed by the oxidation of the cystin fraction of proteins. Aromatic sulphates so formed are present in all human urines, even in health, for we all take in aromatic poisons with our foods, or form them in our intestines.

In health about one-tenth of the sulphuric acid of the urine is in such forms, but when the intake or formation of aromatic poisons is excessive, the proportion is far higher, and in carboluria nearly all the sulphuric acid is so combined.

The decomposition of proteins in the alimentary canal by the action of intestinal bacteria is an important source of such poisons. In ordinary circumstances fluctuations of the output of aromatic sulphates in the urine are mainly due to such decomposition, and hence the proportion of the total sulphates so combined affords some measure of intestinal putrefactive changes. The so-called indican of urine is such a compound, an indoxyl-sulphate formed from indol which is derived from the tryptophane fraction of proteins under the influence of intestinal bacteria, and its abundant presence also testifies to the activity of protein putrefaction.

Another most important protective mechanism is that by means of which the organism is guarded against poisoning by acids and vegetivora, which from the abundance of the alkalis in their diet run comparatively little risk of such poisoning, appear to lack this means of defence. It is far easier to kill a rabbit with acids than a dog. The fixed alkalis of the tissues are urgently needed for more important uses than the mere neutralization of acids, and any excessive call upon them for that purpose has disastrous results; but by the breaking down of proteins, and the stripping off of the amino groups from the various protein fractions, ammonia is abundantly found, and normally goes to the making of urea. In acid poisoning more or less of this ammonia is intercepted, is employed for neutralization, and appears in the urine as ammonium salts.

Hence it comes about that the amount of ammonia in the urine affords a measure of the quantities of abnormal acids in circulation in the organism, and when sodium bicarbonate is freely taken in cases of acidosis there is

less need of ammonia for neutralization, and the output is accordingly diminished.

Although under the stress of special conditions the ordinary metabolic scheme is departed from in certain directions, and, indeed, is more or less deranged in almost all diseases, it is highly improbable that the body chemistry ever goes wrong on its own initiative, and in this, as in other connexions, the epithet "idiopathic," now seldom used, is a survival of an age of ideas which are fast becoming obsolete.

Whether if placed in a perfect environment the human body would survive much more than a hundred years may still be looked upon as an open question, despite the brilliant writings of Metchnikoff and his well-known views upon the subject. In every chemical process there is some loss, by formation of by-products, and it may well be that the cumulative effect of such infinitesimal losses, in the constant breaking down and repair of the cells of the body, would, in any circumstances, bring the machine to a standstill in time. In all such speculations the crux of the problem is why the average duration of life of different animals varies so widely—why a dog becomes senile almost before his human contemporary is out of the nursery—and the intestinal theory hardly seems to explain this.

However, comparatively few human beings die of senile decay. Many succumb in early life to the invasions of the bacteria which surround us. Many, again, succumb to what may be styled the maladies of the second half of life, granular kidney and its congeners, some of which may well be effects of the accumulated minimal insults to which the organism is exposed, of trifling injuries, and minor indiscretions of diet and hygiene.

Advancing knowledge tends to bring the conviction that all diseases come from without, save such as are inborn (not merely acquired *in utero*) and which are less diseases than structural or functional peculiarities, inherited and *bred in the bone*. Such inborn peculiarities are met with in the domain of metabolism, as well as in that of structure. By coming from without I do not mean to imply that all maladies are due to invasion of the organism by vegetable or animal parasites. The alimentary canal is, strictly speaking, an external region, and an important rôle as exciters of disease must be ascribed to poisons introduced into the alimentary canal, or formed by the action upon food materials of the bacteria which abound therein.

The disturbances of metabolism which result from disease are often slight and inconspicuous, but in some maladies, which are often spoken of as diseases of metabolism, such disturbances dominate the clinical picture. Yet "diseases of metabolism" is a misleading term, for the chemical processes in the organism do not go wrong on their own initiative, and metabolism is no more truly diseased, than a machine is out of order because it goes wrong or comes to a stop when a stick is inserted among the wheels.

In gout, which is one of the diseases commonly included under this name, uric acid is the villain of the piece, but not, I believe, nearly so truculent a villain as it is often depicted. Indeed, I would venture to assert that uric acid has acquired in the public mind, and in that of many members of our profession, a pathological importance wholly beyond its deserts.

Some fifty or sixty years ago, soon after the discovery of an excess of uric acid in the blood of the gouty, the question of the pathology of gout appeared to have been solved to a great extent. It was taught that, owing to an impaired power of excreting uric acid by way of the kidneys, the observed accumulation occurs in the blood; that at intervals the power of the blood to hold uric acid in solution becomes overtaxed, and deposition of sodium biurate results in those tissues, such as cartilages, in which the conditions are least favourable to its remaining in solution, and that such deposition is the exciting cause of the acute paroxysm of gout. Since that time much elaborate work has been done upon the metabolism of the gouty, and by methods far exceeding in accuracy any which were available sixty years ago. Theories have arisen and theories have gone to the wall. Opinion has swung, like a pendulum, now towards the views that even in gout itself uric acid plays only a small and secondary rôle, then towards the attribution to this substance of a predominant influence in many diseases besides gout.

It has been maintained that the gouty deposits are formed *in situ*, and even that the uric acid in the blood is derived from the deposits, and not the deposits from the accumulated uric acid in the blood. Again, the view has been advocated that it is the uric acid in solution which does the mischief, and not its deposition from solution.

And yet, of recent years, the opinion of most of those who have studied the subject most closely has steadily tended back to something very closely resembling the original theory. Recent researches have corrected not a few minor inaccuracies, mainly due to the lack of adequate methods and a more embryonic stage of chemical knowledge, such as the view that the deposition is determined by lowering of the alkalinity of the blood. On the other hand, there seems to be no way of escape from the conclusion that uric acid is present in excess in the blood of gouty patients because it is imperfectly excreted. In no other way can the undoubted fact be explained that the excess in the blood is not accompanied by any excess in the urine, and often by some diminution of the output. Only for short periods during or immediately after the acute attacks has any increased excretion been observed.

If the excretion of uric acid were unimpaired, excess in the urine would go hand in hand with excess in the blood, as is actually the case during an excessive intake of purin substances—for example, when thymus gland is freely eaten, and when there is an excessive formation of uric acid, as is the case in some forms of leukaemia. Nevertheless the cause of the impaired excretion, and whether it be due to failure of renal functions or some unusual combination or state of the uric acid which hinders its excretion, is still unknown. Many other problems of gout still remain unsolved. It is uncertain in what combination the uric acid exists in the blood, what are the actual conditions which determine the deposition in the tissues, and how far the many symptoms which are commonly diagnosed as gouty, often upon very flimsy evidence, are directly connected with true gout, and are in any way dependent upon the uric acid error.

I lay stress upon the impairment of uric acid excretion, because there is a very widespread belief that the urine of a gouty patient is loaded with uric acid, and even that the existence of a gouty state can be diagnosed by examination of the urine. No one can diagnose goutiness by such means, and the erroneous belief doubtless had its origin in the frequency of uratic deposits in the urine of gouty patients, or the presence of abundant crystals of uric acid. These phenomena have no necessary connexion with an excessive daily output, but are rather due to concentration and other conditions unfavourable to solution. Excessive output is a cause, but only one of the causes, of such deposits.

Again, it is very generally assumed that because a drug is a good solvent of uric acid it is therefore of value in the treatment of gout. From the standpoint of the chemist this is a most unsound assumption. However soluble the urate of a metal may be, there is little chance that by administering a salt of that metal by the mouth we shall be able materially to promote the excretion of uric acid. Combinations of acids and bases are controlled by rigid chemical laws, and the bases with which an acid combines are determined by the relative amounts of the several bases on the spot. There is little hope that by giving a particular base in medicinal doses we can secure its presence, in any given region of the body in such quantities that it will have a chance against the sodium which is so abundant in the blood and tissues. The uric acid will show no preference for the base with which it forms a more soluble compound; and that base must take its chance with the rest in the general scramble. Thus it will be seen that there is no scientific ground for the use of substances which form specially soluble urates in the treatment of gout.

Our notions as to the place of uric acid in metabolism have undergone profound change in recent years. It is recognized that this substance can no longer be looked upon as an intermediate product in the formation of urea, but that it is a special product of the breaking down of one particular class of protein substances, the nucleo-proteins. A second mode of origin, by synthesis, is perhaps operative, to some extent, in the human body, and must play an important part in birds and reptiles, the bulk of whose nitrogenous excretion is in this form.

Obviously this change of view cannot fail to modify profoundly our ideas as to the optimum diet of gouty patients. Our aim will be to avoid adding to the excess of uric acid in the blood, by limiting the intake of its parent substances, the purin bodies and nucleo-proteins. To this end it no longer appears necessary to restrict protein foods generally, unless the kidneys be actually diseased, but rather to restrict such foods as are rich in the constituents referred to, namely, the extractives of meat, the glandular organs, such as sweetbreads and kidneys, and the varieties of meat which are specially fibrous, and therefore rich in nucleo-proteins. Other restrictions which are imposed, and with good cause, are made upon empirical grounds, and mainly on the testimony of those best qualified to judge of their desirability, namely, gouty sufferers themselves.

Of all foods the thymus gland, or throatbread, is far the richest in purins, whereas some protein foods, such as eggs, milk and cheese, are, as Walker Hall has shown, almost entirely purin-free.

Remember that in these ways we are not treating the actual disease, but are trying to modify its symptoms. The accumulation of uric acid in the blood is not the cause of gout, but only that of its symptoms. It is the result and not the cause of the primary disease. Regulation of diet is helpful to a sufferer from gout, just in the same way as a restriction on different lines is helpful to a sufferer from diabetes.

Of all diseases known to us, diabetes is that in which metabolic disorders most run riot, whereas the underlying mischief usually manifests itself by no outward signs. We are accustomed to speak of diabetes as a disease, but it would be more correct to describe it as a syndrome common to several diseases. It is true that in their clinical features and developments cases of diabetes closely resemble each other, although they differ widely in their rates of progress, duration, and gravity. Any diabetic patient may acquire cataract or gangrene, may lose flesh, and is liable to suppuration after slight injuries; and any case may end in diabetic coma.

These resemblances supply no argument against diversity of origin, for the symptoms mentioned are, one and all, secondary effects of the derangement of the carbohydrate metabolism, and are either due to the excess of sugar in the blood, or to the tissue destruction which persistent glycosuria brings in its train.

The definition of diabetes as a disease characterized by persistent glycosuria is by no means adequate, for no sharp dividing line can be drawn between transitory and permanent glycosuria, nor is it a satisfactory plan to exclude from the diabetic group any case which does not go on to a fatal ending.

Some cases of diabetes are undoubtedly due to organic disease of the pancreas, which can be demonstrated *post mortem* and is sometimes revealed by the passage of fatty stools or other signs of affection of that organ appreciable during life. In other cases nothing can be found amiss with the pancreas after death, and the most recent researches of Falta and others, carried out in von Noorden's clinic, suggest that the ductless glands may play an important part in the pathology of diabetes, possibly by an influence exerted by their secretions upon the functions of the pancreas. At any rate, it is a noteworthy fact that carbohydrate metabolism is conspicuously influenced by the secretions of the thyroid, pituitary, and suprarenal glands alike. Time forbids more than this passing reference to the fascinating question of the influence of the ductless glands upon metabolism, of which much will probably be heard in the future. Again, we cannot leave out of account in discussing the pathology of diabetes the influence of the nervous system, exerted either directly or indirectly through the ductless glands, an influence which has been well recognized ever since the days of Claude Bernard.

No plan of treatment hitherto tried has succeeded in attacking diabetes at its foundations. Appropriate dietetic treatment, and to a less extent treatment by drugs, is capable of modifying its course to a remarkable degree, and undoubtedly prolongs greatly the lives of many sufferers. Yet such treatment, as applied in practice, is too often perfunctory and by rule of thumb, whereas it should be adapted to each individual case, and even to the particular stage of the patient's malady. Only in this way can the best results be obtained.

Let us pause to consider for a moment the aims of dietetic treatment in diabetes. By its means we are able, in many cases, to decrease materially, or even to arrest completely, the output of glucose, and this because we are able to diminish or to remove the excess of sugar in the blood. The loss of the potential energy of the unburnt sugar can be readily compensated by dietetic means, but the hyperglycaemia is the cause of many of the troubles to which diabetic patients are liable. Again, by resting the damaged mechanism as far as may be, we not only arrest the aggravation of the error, but even bring about, in no small proportion of cases, a remarkable recovery of tolerance for carbohydrates—a matter of no small importance. Some diabetics are able, after a course of rigid dieting, to deal with much larger quantities of starch than would have sufficed to excite glycosuria before such treatment. Whereas when starchy food is allowed without restriction a progressive aggravation of the metabolic error results, often very rapidly.

Remember that not a few diabetic subjects, in the earliest stages of their malady, pass sugar only under severe provocation as after a meal rich in starch, and unless the urine of certain times of day be examined, the glycosuria may escape notice. In such cases a restriction of carbohydrate food is eminently desirable. It is a well-known fact that a meal of sugar, provided that it is large enough—for example, some 150 to 200 grams of glucose—will excite transient glycosuria in any normal individual, but in health no amount of starch which can be taken will bring about this result, and when glycosuria is provoked by starchy as distinguished from sugary food, the patient must be looked upon as a potential diabetic at least.

Whether by a restriction of diet an individual with an inherited tendency to diabetes can be saved from developing the disease is a question which cannot yet be answered, but some limitation of the intake of sugar and starch by such persons is certainly not an unreasonable precaution.

That actual recovery does occur in some cases which are rightly classed as examples of diabetes, I firmly believe, and we may well hope that the investigations of which this malady continues to be the subject will some day enable us to treat some cases with success. On the other hand, it is little likely that any one plan of treatment will serve in all the conditions in which diabetes originates. Therapeutic measures which may prove of much service in cases in which the pancreas is not primarily involved, might well prove powerless in the face of organic disease of that gland.

Even in its graver forms disease of the pancreas is not easy of diagnosis, and in its slighter forms may wholly elude our diagnostic methods. It can hardly be doubted that, like other glands, the pancreas is the seat of passing inflammatory lesions, which, if rightly treated, may leave no permanent structural damage to the gland, but may, whilst they last, give rise to glycosuria. In this connexion I would refer you to a recent and very suggestive paper by Mr. Mayo Robson on the surgical treatment of some cases of glycosuria, and examples are occasionally met with which are best explained on such lines.

I do not propose to attempt to give even a cursory sketch of what has been learnt about the perverted chemistry of diabetes. To do so several hours rather than a few minutes would be necessary. However, the acetonaemia, which plays so conspicuous a part in this malady, calls imperatively for mention.

The presence of acetone in the urine, in the breath of the patient and in his blood, is not in itself a matter of serious moment. It serves rather as a valuable advertising sign of an important metabolic disturbance. The acetone is formed from aceto-acetic acid, the substance which yields the familiar reaction when ferric chloride is added to the urine—another valuable warning signal. Behind the aceto-acetic acid again is its parent substance, β oxybutyric acid, the presence of which is not revealed by any simple clinical test, but which is the chief offender. In grave cases of diabetes 30, 50, or even 70 grams of β-oxybutyric acid may be excreted in the course of twenty-four hours. It is believed that this substance and aceto-acetic acid exert their malign action as acids rather than in virtue of specific toxic properties, and hence the condition under discussion is often spoken

of as acidosis. A diabetic patient may die with some of the symptoms which are usually associated with coma, although he has little β-oxybutyric acid in his blood, but it is generally held at the present day that the characteristic air hunger and the coma which follow upon it are actually due to acid poisoning. At any rate, such symptoms develop in fatal cases of acetonaemia in which there is no diabetes, for be it noted that acetonaemia is a common symptom in sick children suffering from a variety of different maladies.

Some degree of acidosis is induced by mere abstinence from food, and even by the withdrawal of carbohydrates from the diet. The acetone bodies are formed in part from the breaking down of fats, and in part from certain fractions of the protein molecules, and a diabetic patient who shows no signs of acetonaemia when on an ordinary mixed diet will usually develop a conspicuous iron reaction as his carbohydrates are more and more restricted, until that part of his carbohydrate intake with which even he is capable of dealing has been cut off.

It is generally conceded that an abrupt change from an ordinary diet to a strict one is fraught with dangers to a diabetic patient, and that the reduction should be gradual, acidosis being guarded against by the free administration of sodium bicarbonate when acetonaemia is pronounced.

Thus we are confronted with the dilemma that the therapeutic measures which experience shows to be essential are liable to increase the tendency to one of the gravest accidents of the disease, and experience teaches that it is far easier to increase acetonaemia by restricted diet than to diminish it by subsequent relaxation. Yet the restriction *must* be carried out, but with watchful care and circumspection.

There is no doubt that children much more readily develop such acidosis than do adults, and apart from diabetes, many of the morbid states which it complicates are characterized by vomiting, as, for example, the cyclic vomiting of children, and that very fatal and puzzling mishap known as delayed chloroform poisoning. It is a tempting hypothesis which regards the vomiting as the actual cause of the condition, in view of the starvation which it involves, but there are serious clinical obstacles to such a view. In some cases the signs of acetonaemia are present almost before the vomiting begins; in others, despite incessant vomiting, acidosis is not developed. Again, no such explanation applies to some other varieties of acetonaemia in children, such as that which so often accompanies bronchopneumonia.

It is difficult to escape from the belief that in delayed anaesthetic poisoning—for chloroform is not the only culprit—the conspicuous acidosis is the actual cause of death with symptoms so like those of diabetic coma, and it is with children, who are so prone to acetonaemia, that such accidents occur.

The fatty change seen in the liver in delayed chloroform poisoning is also observed in cases of acidosis due to other causes, and in some cases at least the free administration of alkalis has appeared to have saved the lives of the patients. One is tempted to believe that the liver is loaded with fat which has been brought to it for burning in quantities greater than it is able to deal with efficiently, with the result that, owing to its incomplete combustion, the acetone bodies are formed in excessive amounts. However, when one attempts to fit in the observed clinical facts with so simple a theory, difficulties are encountered at every turn; nor can it even be contended that the acidosis theory offers a complete and satisfactory explanation of the phenomena of diabetic coma. It is highly probable that other, as yet unknown, factors are also at work in the causation of that condition.

To turn to yet one other field, the subject of calculus formation offers many interesting chemical problems. Stones, wherever met with in the body, are formed of substances which are sparingly soluble in the surrounding media, but the mere fact that a sparingly soluble substance is present, or is even deposited from solution, does not supply an adequate cause for calculus formation. The rare anomaly, cystinuria, affords the clearest example of this fact. Cystin is an abnormal excretion product, which is very readily deposited in crystals in the urinary tract, and those who excrete it are very apt to suffer from calculi. Nevertheless, a cystinuric may pass crystals for years and yet not suffer from stones. A catarrhal condition is necessary to bring about their formation. It is quite possible that the deposited crystals contribute to exciting this catarrh, but what has been learnt of recent years as to the infection of the biliary passages as the cause of gall stones, and as to the readiness with which the *Bacillus coli* finds its way into the urinary tract, suggests that such an infection may be an important factor in not a few instances.

The same applies to other varieties of urinary calculi, oxalic, uric, and phosphatic alike. They are not mere casual agglomerations of crystals, but bodies of crystalline structure formed around an organic basis composed of catarrhal products.

It is not yet known for certain whether the condition which we call oxaluria—that is, the excretion of crystals of calcium oxalate—is ever due to a true metabolic anomaly and is independent of dietetic causes. The bulk of the oxalic acid of urine appears to be derived from the food, and an oxalate-free diet will usually, if not always, suffice to remove the crystals from the urine. After the eating of foods specially rich in oxalates, such as rhubarb and spinach, the crystals become very abundant, and by their mechanical action may excite albuminuria, and even haematuria.

The deposition of crystals does not by any means go hand in hand with excessive excretion of oxalic acid; such excessive output is only one of several factors, amongst which the reaction of the urine, and, as Klemperer and Tritchler have shown, the relative amounts of calcium and magnesium present in it, are amongst the chief.

Hence our aim in treatment should be to eliminate from the diet those vegetable foodstuffs which contain most oxalate, such as rhubarb, spinach, and tea, and a number of fruits and vegetables. At the same time we may attempt to influence the proportions of the bases present in the urine by cutting off foodstuffs specially rich in calcium, such as milk and eggs; and by prescribing such as are rich in magnesium and at the same time poor in oxalic acid, such as peas, beans, and coffee, and oxalate-free foods, such as all kinds of meat.

The so-called phosphaturia has, as you well know, nothing to do with increased excretion of phosphoric acid; indeed, such an increase would augment the acidity of and effectually prevent the deposition of earthy phosphates from the urine. The urine is turbid and deposits phosphates simply because it is alkaline, and therefore unable to hold the earthy phosphates in solution.

In many cases phosphaturia is associated with neurasthenic conditions, and general hygienic and tonic treatment has more effect in restoring the natural acidity of the urine than has the administration of acids, of which, as Dr. R. Hutchison has shown, acid sodium phosphate is the most efficacious. On the other hand, there is a class of cases, chiefly met with in children, which is of special interest, the true nature of which has only been revealed by the chemical investigations of Soetbeer and Tobler.

Normally the bulk of the calcium excretion of the body is effected by way of the intestine, and only a small part by way of the kidneys. In the cases referred to this relation is reversed, and owing to some morbid condition, probably catarrhal, of the intestinal wall, the bulk of the calcium appears in the urine. There is no increase of calcium excretion as a whole, but merely diversion of part of the output. As a result the urine becomes alkaline, the earthy phosphates are increased at the expense of the alkaline phosphates, and copious deposition occurs. Withdrawal of foods specially rich in calcium, such as milk and eggs, will usually suffice to stop the phosphaturia, but our treatment should also be directed to the intestinal disturbance to which the condition is due.

And now, Sir, the time has come when I must gather in the threads of my discourse, hoping that the few examples amongst many to which I have briefly alluded will suffice to prove the thesis with which I set out—that chemistry is able to lend valuable aid in the solution of problems of clinical and practical importance to medical men, and helps materially as a guide to treatment.

On the other hand, we must not expect from chemical studies more than they can reasonably be expected to give. Unlike the bacteriologist who deals with the actual *causae causantes* of many morbid states, the chemical pathologist

can only study the response of the organism to morbific agencies. He can tell us much concerning the forms which disease takes and the origin of symptoms, but comparatively little as to the actual causation of maladies.

We have been considering this afternoon examples of phenomena which can be studied by ordinary chemical methods, which are accessible to the test tube and the balance; but the advance of bacteriology is revealing responses of the organism of much more subtle nature still, and has familiarized us with theoretic substances known by such names as antitoxins, and agglutinins, precipitins, and the like. The phenomena of immunity have doubtless a chemical basis, although the substances concerned are known as yet only by single properties, just as, for a number of years, the planet Neptune was only known by its disturbing influence upon the orbit of its nearest celestial neighbour Uranus. Now, Neptune has been seen, weighed and measured, and has taken its place as a regular member of the solar system, and we may reasonably hope that in due time the substances of which we are speaking will, in like manner, be brought within the grip of the chemist, and will rank as compounds of known constitution and molecular structure.

Obviously the realization of this dream will result in an immense extension of the field in which chemistry and medicine meet.

THE ASSOCIATION OF TOXAEMIA OF PREGNANCY WITH HAEMORRHAGE.

BY

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The following remarks are based upon a series of cases of toxaemia of pregnancy treated at Guy's Hospital during the last eleven years. Investigation of their records has shown that haemorrhage in one form or another is not a very infrequent symptom of the disease, and that in some cases it may be so great as to constitute its principal feature.

It may be said at once that part of this paper, which deals with antepartal haemorrhage, concerns facts the interpretation of which is the subject of controversy, and one of my chief reasons for its publication is that very strong and, to my mind, conclusive evidence is shown of the causal relationship between toxaemia and this form of haemorrhage. Lastly, a small group of cases occurs in which haemorrhage, not from the uterus, was so severe as to be a very great source of danger to the patient, and, so far as I can gather, no similar condition has hitherto been described in association with toxaemia of pregnancy.

I wish here to express my thanks to the obstetric surgeons of the hospital for their kindness in allowing me to make use of their cases.

The cases of haemorrhage fall into three groups.

I. Haemorrhage from the Kidneys.

Haematuria is mentioned as a symptom in all descriptions of eclampsia, and needs no special attention here. It is a sign of advanced degeneration of the renal epithelium, and for this reason has an importance from the point of view of prognosis.

Among the 36 cases of eclampsia treated at Guy's Hospital in the period stated above, haematuria was present in 10, and of these patients 6 died—that is, 60 per cent.—while of the total number only 11 died, or 30.5 per cent. It is therefore clear that haematuria has a grave prognostic significance in eclampsia.

I do not propose to describe these cases in detail. Suffice it to say that they were all typical examples of eclampsia.

II. Haemorrhage from the Uterus.

As long ago as 1885 Winter drew attention to the fact that in many cases of accidental haemorrhage albuminuria was found, and he expressed the opinion that a causal relationship existed between the two conditions. Since then several writers, notably the French, have supported his opinion, but their teaching has not been generally followed, and in the English textbooks of to-day, though renal disease is mentioned as a cause of haemorrhage, it is not given any particular prominence.

I hope to show that toxaemia of pregnancy is very frequently found in association with one form of accidental haemorrhage—namely, concealed—so frequently that it seems incredible that a direct causal relationship does not exist between the two.

On the face of it, toxaemia of pregnancy would seem likely to cause haemorrhage from the uterus, for it is undoubted that marked changes occur in the placenta as a result of it, leading to extensive infarction, and it is natural to expect that these changes may in some cases cause separation of the placenta from the uterine wall and resulting haemorrhage between them.

Again, it is a common experience that patients suffering from concealed haemorrhage are frequently much more ill than the amount of their haemorrhage would lead one to expect. If in these cases toxaemia is also present, a ready explanation at once presents itself.

During the years 1900–1910, 13 cases of concealed accidental haemorrhage were treated, and of these 8, or 61.5 per cent., presented symptoms of what I take to have been toxaemia of pregnancy; surely more than can possibly be accounted for by coincidence. On the other hand, of 30 cases of external accidental haemorrhage, only 1 showed signs of toxaemia.

This striking difference may be explained by the fact that in a great many cases the external haemorrhage may have been due to low implantation of the placenta, which, however, was not low enough to be felt by the hand in the early stages of labour, and that they were wrongly classed as accidental. Probably, therefore, a greater percentage of cases of external haemorrhage are the subjects of toxaemia than appears from these figures.

The signs of toxaemia were as follows: In most cases albuminuria occurred, and was the only sign in the five patients who recovered. That the albuminuria was toxic and not due to old-established nephritis is, I think, evident from the fact that all these patients had been quite well previously, and that in each case the albuminuria completely disappeared within a few days after the confinement, as it would not have done if a chronic lesion of the kidney had been present.

In several cases oedema was noticed, which also rapidly subsided after the confinements.

In one case (III) eclamptic convulsions occurred, and it is possible that they may have been the cause of the haemorrhage; but as the last fit occurred three days before the haemorrhage started, it seems hardly probable. In Case VIII the evidence is, I admit, doubtful. She had one fit before medical aid was summoned, but the description of it given by the relatives corresponded so exactly with those of eclampsia that I think it may fairly be included in the series. Unfortunately, no histological examination was made of the liver and kidneys *post mortem*. The *post-mortem* findings in the other two fatal cases were those typically found in toxaemia of pregnancy.

The retinae were examined in those cases where a suspicion of chronic nephritis was entertained, but in all cases were found to be normal.

I think, then, that it may justly be assumed that all these patients, with the possible exception mentioned, were suffering from toxaemia of pregnancy.

The frequent association with haemorrhage—more than 60 per cent. in cases of concealed haemorrhage—must be more than coincidence, and the logical conclusion is that the toxaemia is the cause of the haemorrhage, probably through its effect upon the placenta.

The preponderating frequency of concealed haemorrhage is noteworthy, and may be explained by the fact that in these cases the uterine muscle is in an atonic state and makes no effort to expel the blood. Also I am convinced that, as I have said above, external accidental haemorrhage is much less common than is generally supposed, many, if not most, of the cases being really due to placenta praevia.

Short Histories of the Cases.

Case I.

Eliza W., aged 38, multipara, was admitted on January 19th, 1904. She had had nine full-term pregnancies and four miscarriages, and had always had good health. In her present pregnancy she was quite well till the end of the eighth month, when she suddenly fainted, and began to lose blood per vaginam. She was brought up at once to the hospital.

On admission she was very anaemic and looked extremely ill. Her temperature was 96° F. and pulse 64. The fundus uteri reached to the ensiform cartilage and the uterus felt very hard. The abdomen was very tender. The cervix was nearly fully dilated and there was some slight external haemorrhage. The urine contained 6 parts per 1,000 of albumen.

Labour terminated spontaneously soon after admission, and a large mass of blood clot was expelled with the placenta. There was no *post-partum* haemorrhage. The child was born dead. The patient made a rapid convalescence. The albumen in the urine disappeared four days after the confinement, and she was discharged in fairly good health, but still rather anaemic, three weeks later. The retinae were examined whilst she was in the hospital and found to be normal.

CASE II.

Annie W., aged 32, multipara, was admitted on June 6th, 1904. She had had three previous pregnancies, all straightforward, and she had never had any illness. Her present pregnancy was normal till the end of the seventh month, when she had severe abdominal pain and began to lose blood per vaginam.

On admission the same day she was very anaemic and collapsed; pulse 120. The face was puffy and the legs slightly oedematous. The urine contained 5 parts per 1,000 of albumen and some blood and epithelial casts. The uterus reached to within 2 in. of the ensiform cartilage and was hard and tender. The cervix admitted one finger. There was slight external haemorrhage,

The cervix and vagina were plugged with gauze, and four hours later bipolar version was performed and a leg brought down. Labour terminated without further assistance and a dead child was born. The placenta came away with the fetus and a large mass of dark blood clot. There was slight *post-partum* haemorrhage, which was easily controlled. She made a good recovery, and the albumen disappeared from the urine within a week of the confinement. She was discharged on July 2nd in good health.

CASE III.

Louisa G., aged 19, primipara, was admitted on April 15th, 1904. There was no history of previous illness. Her pregnancy was normal until the middle of the seventh month, when her legs became oedematous. Two weeks later she began to have morning sickness, and two weeks after this, that is, in the middle of the eighth month, she had an eclamptic fit. She was at once brought to the hospital, and on her arrival she had a second fit.

On admission she was comatose, and looked desperately ill, pulse 110. She was not in labour. The urine contained 12 parts per 1,000 of albumen, and the legs and lower part of the body were very oedematous. The usual treatment of eclampsia was given, and she began to improve at once. She had one more fit on the following day, but speedily improved after this. The oedema diminished considerably, and only a trace of albumen was found in the urine, and her pulse-rate descended to normal.

On April 19th she appeared to be making good progress, but at 6 p.m. she began to lose blood per vaginam and became very restless. Labour pains set in at the same time. At 9 p.m. she became collapsed, and the pulse rose to 136. The uterus was firmly contracted and very tender. Concealed haemorrhage was diagnosed, and it was decided to empty the uterus. The cervix was dilated rapidly with the hand, and craniotomy performed. The child was extracted without difficulty, and the placenta was followed by more than a pint of blood clot. There was no *post-partum* haemorrhage. She rallied slightly after this, but two hours later she had a severe eclamptic fit, and in spite of various restoratives succumbed shortly afterwards.

At the necropsy all the internal organs were found to be very pale, but presented no other macroscopical abnormality. Histological examination of the kidney showed cloudy swelling of the epithelium of the convoluted tubes. The liver was not examined.

CASE IV.

Amy S., aged 34, multipara, was admitted on October 19th, 1904. She had had seven children, and with the last two pregnancies there had been *ante-partum* haemorrhage during the eighth month. Except on these two occasions she had always been healthy. During the seventh month of the present pregnancy her legs became oedematous, and a few days later she was seized with severe abdominal pain, and became faint.

On admission the same day she was anaemic, but the pulse was good. The legs were oedematous, and the urine contained a large quantity of albumen, but no other abnormal constituent. The uterus was considerably over the normal size for the date of the pregnancy, and was tender, but not hard. The cervix admitted two fingers.

Bipolar version was performed and a leg drawn down. Shortly after the manipulation she became very collapsed, and it was noticed that the uterus had increased in size. As the cervix was still too small for extraction of the child, Caesarean section was decided upon and performed without delay. The uterus contained a large amount of blood, and, as it was still bleeding, hysterectomy was performed. She was very collapsed after the operation, but eventually made a good recovery. The oedema quickly subsided, and the albumen disappeared from the urine completely in a few days.

CASE V.

Emily W., aged 26, primipara, was admitted on January 1st, 1905. She had had no previous illness. During the sixth month she complained of severe occipital headache, and began to bleed slightly from the vagina. Her legs at the same time became oedematous, and her urine was found to contain albumen.

On admission her temperature and pulse were normal, and she did not look ill. The legs were slightly oedematous, and the urine contained 2 parts per 1,000 of albumen. The uterus corresponded in size to the date of pregnancy, and the cervix was not dilated. There was no vaginal haemorrhage. Later on the same day she suddenly had severe abdominal pain, and it was found that the uterus was considerably larger than on admission. The cervix now admitted one finger.

Concealed haemorrhage was diagnosed, and the cervix and vagina plugged with gauze. During the following night a dead fetus was expelled together with a large amount of recently clotted blood. There was no *post-partum* haemorrhage. She made a good recovery. The urine was free from albumen in seven days, and the oedema rapidly subsided. She was discharged on January 17th in good health.

CASE VI.

Eliza E., aged 36, multipara, was admitted on July 1st, 1905. She had had five children, all normal pregnancies, and had never been ill. Throughout the present pregnancy she had felt ill. In the middle of the eighth month she had a sudden severe haemorrhage from the vagina and became faint.

On admission the same day she was very anaemic; pulse 108. The urine contained albumen. There was no oedema. The uterus reached to the ensiform cartilage, and was very hard and tender. There was considerable external haemorrhage, and the cervix admitted two fingers.

Concealed haemorrhage was diagnosed, and the cervix and vagina plugged with gauze after rupture of the membranes. Four hours later a dead child was expelled together with 1½ pints of blood clot. There was no *post-partum* haemorrhage. She made a good recovery, and the urine was free from albumen within a few days after the confinement.

CASE VII.

Alice S., aged 39, multipara, was admitted on February 27th, 1908. She had always been healthy and had had no trouble with her previous confinements. Her present pregnancy was normal up to the end of the sixth month, when slight haemorrhage from the vagina occurred. This continued for three weeks, at the end of which time she sought medical advice and was sent at once to the hospital.

On admission her condition was extremely grave. She was very collapsed, pulse 110, temperature 101.6°. The uterus corresponded in size to the eighth month of pregnancy, and was very firm and tender. The cervix admitted two fingers, and there was very little external haemorrhage. A mass of blood clot could be felt in the lower part of the uterus. No urine was obtainable.

A Charpentier de Ribes's bag was introduced into the cervix. Three hours later she suddenly became dyspnoeic and the pulse was imperceptible. Various stimulants were given, but she died shortly afterwards.

At the necropsy the uterus was found to contain two pints of firm blood clot, apparently of some days' standing. The placenta was entirely separated from the uterine wall, but normal in position. The fetus, of about six months' date, was slightly macerated, and had evidently been dead for some time. The kidneys were large and pale, and, on histological examination, showed cloudy swelling of the epithelium of the convoluted tubes with in many places patches of complete necrosis. All the other viscera were bloodless, but showed no other sign of disease.

CASE VIII.

Alice G., aged 39, multipara, was admitted on April 4th, 1908. She had had ten previous pregnancies, and had always been healthy. Throughout her present pregnancy she was well until shortly before term, when she had a fit, described by her relatives as starting with convulsions and followed by a long period of unconsciousness. Later in the same day she suddenly became faint, and was brought to the hospital.

On admission she appeared to be extremely ill. She was very anaemic, pulse 132, temperature 96°. The uterus was firmly contracted and tender, and reached to the ensiform cartilage. The cervix admitted two fingers, and there was no external haemorrhage. There was no albumen in the urine.

The vagina and cervix were plugged with gauze, and four hours later a Charpentier de Ribes's bag was introduced. One and a half hours later a dead child was delivered with forceps, and two pints of blood clot were evacuated from the uterus. By this time she was pulseless and obviously moribund. She died one and a quarter hours later.

At the necropsy all the viscera were very pale, but not obviously diseased. The uterus showed several ruptures in the peritoneal coat of the fundus, not extending into the muscle, and the peritoneal cavity contained a pint of fluid blood. Unfortunately no histological examination was made of the viscera.

CASE IX.

Ellen B., aged 39, multipara, was admitted on May 19th, 1904. There was no history of any previous illness. Shortly before term she was taken with severe haemorrhage from the vagina, and brought up to the hospital.

On admission she was very blanched. Pulse 108, and temperature subnormal. The uterus reached to the ensiform cartilage, and she was in labour. She was losing freely from the vagina, and the cervix was slightly dilated. The urine contained 11 parts per 1,000 of albumen.

The cervix and vagina were plugged with gauze, and labour terminated thirty-six hours later. The child was stillborn. She made a good recovery. The urine was almost free from albumen three days after the confinement, but it continued to contain a slight trace till her discharge from the hospital three weeks later.

Post-partum Haemorrhage.

Eclampsia is said sometimes to cause *post-partum* haemorrhage. Among all the cases of toxaemia of pregnancy in all its forms treated at Guy's during the past eleven years, only one case occurred which showed any tendency to *post partum* haemorrhage, and in this the haemorrhage was not at all severe. What is more remarkable is that in none of the cases of concealed accidental haemorrhage associated with toxaemia was there any tendency to *post-partum* haemorrhage. It would seem, then, that the danger of *post-partum* haemorrhage has been somewhat exaggerated.

III. Purpura, and Haemorrhage from the Mucous Membranes.

In these cases a haemorrhagic form of toxaemia occurred which has not, I think, previously been described in connexion with pregnancy. Extravasations of blood into the solid viscera and under the serous membranes are well known to occur with eclampsia, but in these patients the haemorrhage was an obvious outward symptom of the disease, and of such an amount as greatly to increase the gravity of their condition, and in one case, at any rate, to be the principal cause of death.

Three cases occurred, all of them between the ages of 20 and 30. Two were primiparae, and one was pregnant for the second time. Two of the patients died, while the third recovered only after being comatose for four days.

The symptoms were those of an acute toxaemia occurring in the later months of pregnancy, and consisted of persistent vomiting, which lasted for periods varying from four days to several weeks, followed by the more or less sudden onset of coma during or shortly after labour.

In Case II the coma was ushered in by eclamptic convulsions. In Case I the urine was found to contain large quantities of albumen ten days before labour. The haemorrhage began in Cases I and III some time before the onset of the acute symptoms; in Case II it was not observed until after the fits started.

The haemorrhage was from the stomach and intestines in all three cases, while in Cases I and III purpura and haemorrhage from the gums also occurred. In all cases it was severe enough to cause profound anaemia, while in Case I it was undoubtedly the chief cause of death. There was no abnormal loss from the uterus in any case. In Case III there was moderate jaundice during convalescence.

The *post-mortem* findings in both the patients who died were those generally seen in eclampsia, except that a very marked degree of haemorrhagic extravasation was noticed in the liver, and that the liver cells also showed a much more advanced stage of degeneration than those of the kidneys. The mucous membrane of the stomach and the intestines was deeply congested, and these organs were filled throughout with fluid blood.

From the presence of severe vomiting in each case, of jaundice in the case that recovered, and of the very extensive changes in the livers of those who died, it would appear that the toxaemia was in the main hepatic in origin.

Case I.

S. W., aged 27, primipara, was admitted on February 13th, 1910. Her health had previously been good, and her pregnancy was within a few days of full term. For a fortnight before admission she had been treated at home for vomiting and pain in the epigastrium. The vomited matter contained small quantities of blood. Ten days before admission the gums began to bleed and continued to do so up to the time of her admission, the haemorrhage becoming more and more profuse. Throughout this time the urine had contained large quantities of albumen, but no blood; no oedema had been noticed.

On admission she was very weak and anaemic; pulse 124. She was bleeding slightly from the gums. The uterus reached to the ensiform cartilage, and labour pains were occurring. The cervix was slightly dilated. Labour pains continued throughout the following night, but there was no change in her general condition till the following morning, when, at 7.30 o'clock a stillborn child was delivered. There was not an abnormal amount of haemorrhage from the uterus, but she appeared to be greatly exhausted after the labour.

At 3 p.m. on the same day the gums began to bleed more profusely, and it was noticed that she had a slight purpuric eruption on face and limbs. In the evening she became comatose, and her pulse could scarcely be felt. The purpura had greatly increased, and her face, trunk, and limbs were covered with large blotches, many of them measuring as much as 2 in. in diameter. She never rallied, and died at 7 a.m. on February 20th, twenty-four hours after the termination of labour.

At the necropsy the mouth, stomach, and intestines were found to be full of blood and the mucous membrane in many places showed large patches of ecchymosis. The liver was yellow and showed large areas of extravasated blood throughout its substance. The kidneys were large and pale, and all the other viscera were very bloodless. Histological examination of the liver and kidneys showed in the former many areas of necrosis at the periphery of the lobules, and in the latter cloudy swelling of the epithelium of the convoluted tubes.

Case II.

Ellen P., aged 21, primipara, was admittted on January 15th, 1911. Her health before the present pregnancy had been good, but throughout her pregnancy she had been troubled with vomiting. Labour began at midnight, January 14th-15th, when she was about seven and a half months pregnant. At 7 a.m., January 15th, she had a fit, and between this and 1.30 p.m. she had fits at frequent intervals.

She was admitted at 1.30 p.m., having had about thirty fits. Her condition was extremely grave. She was semiconscious, and very cyanosed. Pulse, 132; temperature, 101°. She was constantly vomiting large quantities of chocolate-coloured fluid, obviously containing blood. The os uteri admitted two fingers, and the uterus was contracting. The urine contained large quantities of blood and albumen, and the legs were slightly oedematous.

She was kept under slight anaesthesia until 3 p.m. and during this time she had two more fits. At 3 p.m. the cervix was dilated with the fingers and craniotomy was performed and the child extracted. The placenta came away without trouble, and there was no *post-partum* haemorrhage. Vomiting throughout was very troublesome, and large quantities of blood-stained fluid were brought up. At 5.30 p.m. a saline injection was given and a hot-air bath. The pulse was 124 and the temperature normal. At 9.30 she was conscious and a little better, but shortly afterwards she had another fit. Three more fits occurred during the night, and she grew steadily worse, the temperature gradually rising, and the pulse getting weaker and more rapid. Two ¼-grain injections of morphine were given during the night, and towards the end stimulants, but without effect, and she died at 9 a.m. January 16th.

At the necropsy the stomach and intestines were found to be filled with blood, and the mucous membrane throughout was deeply congested. The liver was yellow, and marked on its surface and throughout its substance with large areas of haemorrhage. The left kidney was atrophied; the right double its normal size, and presenting the typical appearance of acute nephritis. Both liver and kidney under the microscope showed marked degenerative changes, the former many areas of necrosis, chiefly at the periphery of the lobules, and the latter cloudy swelling of the epithelium of the convoluted tubules, with here and there patches of complete necrosis.

Case III.

Mary Ann S., aged 27, was admitted on April 1st, 1911. She had had a previous pregnancy which was normal in every way, and she had always enjoyed good health. The present pregnancy was straightforward till the end of the eighth month, when she began to vomit after her food. The vomited matter contained blood, but no haemorrhage occurred from the mouth. After four days, during which she vomited repeatedly, she was admitted to the hospital.

On admission she was semiconscious, pulse 104, temperature 97.6° F. Tongue dry and thickly furred. She looked ill, and was anaemic. The urine contained albumen, but no blood. The uterus corresponded in height to the eighth month of pregnancy, and contractions were occurring. The cervix admitted two fingers.

Shortly after admission she brought up a large amount of deeply blood-stained fluid from the stomach, and it was then noticed that her gums were bleeding On the next day she was comatose. The pulse was 128, and rather weak. She was still vomiting at long intervals. Her mouth was continually becoming filled with blood clot from the bleeding gums, and she had incontinence of urine and faeces.

On April 3rd labour terminated, a dead and slightly macerated fetus being born. She was still comatose and in much the same condition as on the previous day, but more anaemic. The urine contained only a slight trace of albumen, and was being passed in large quantities. The vomiting had ceased, and the haemorrhage from the gums was much less.

On April 5th consciousness returned and she seemed better in every way. On this day a purpuric rash appeared on the shoulders and buttocks, and she became slightly jaundiced. On April 7th both the purpura and the jaundice were more marked, but she was much better. The incontinence of urine had ceased and no haemorrhage occurred from the gums. The urine still contained a trace of albumen.

From this point she made a rapid convalescence; both the purpura and the jaundice quickly faded, and the albumen disappeared from the urine entirely. She was discharged from the hospital on April 26th in fair health, but still anaemic.